PERIODICAL

SEPTEMBER 14, 1946

Railway Age

Founded in 1856

5 Copy 1
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MORE THAN
80,000
CARS
ARE EQUIPPED
WITH...

WINE

Cast Steel
HOPPER
FRAMES

THE WINE RAILWAY APPLIANCE COMPANY • TOLEDO 9, OHIO

PORTER FIRELESS LOCOMOTIVES

NO FIRE · NO SMOKE · NO NOISE

The most economical and trouble-free locomotive ever built

Economical because it runs on excess steam from your plant boilers, because it can be operated by unskilled, low-cost labor, and because it requires very little maintenance. Trouble-free because of the simplicity of its construction. There is no boiler, fire-box, electric motor, generator, or internal combustion engine on a Porter Fireless. There are few working parts, and the reservoir never needs replacement. Actual experience shows that users of Porter Fireless Locomotives save up to 50% of their switching costs.

PORTER LOCOMOTIVES:
Diesel, Diesel-Electric, Steam and Fireless Steam

AMERICAN-FORT PITT SPRINGS:
Coil and Elliptic Springs for Railroad Equipment

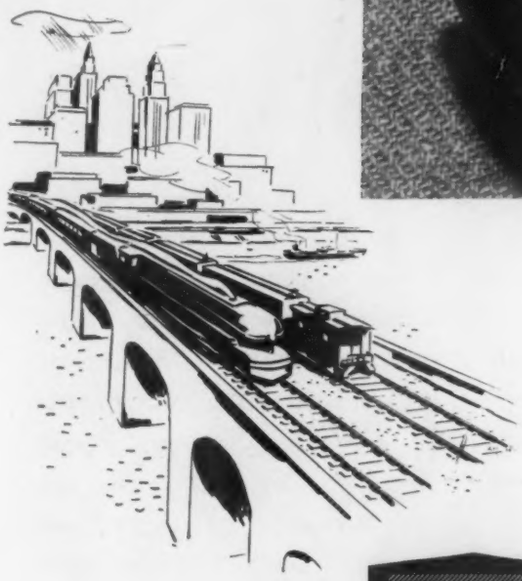
DEVINE IMPREGNATORS:
Vacuum-Pressure Equipment for Impregnating Ties, Timbers, and Electrical Windings

H. K. PORTER COMPANY, Inc.
PITTSBURGH, PENNSYLVANIA
DISTRICT OFFICES IN PRINCIPAL CITIES

Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price $6.00 for one year U. S. and Canada. Single copies, 25 cents each. Vol. 121, No. 11.

Rivets...

FOR EVERY RAILROAD NEED

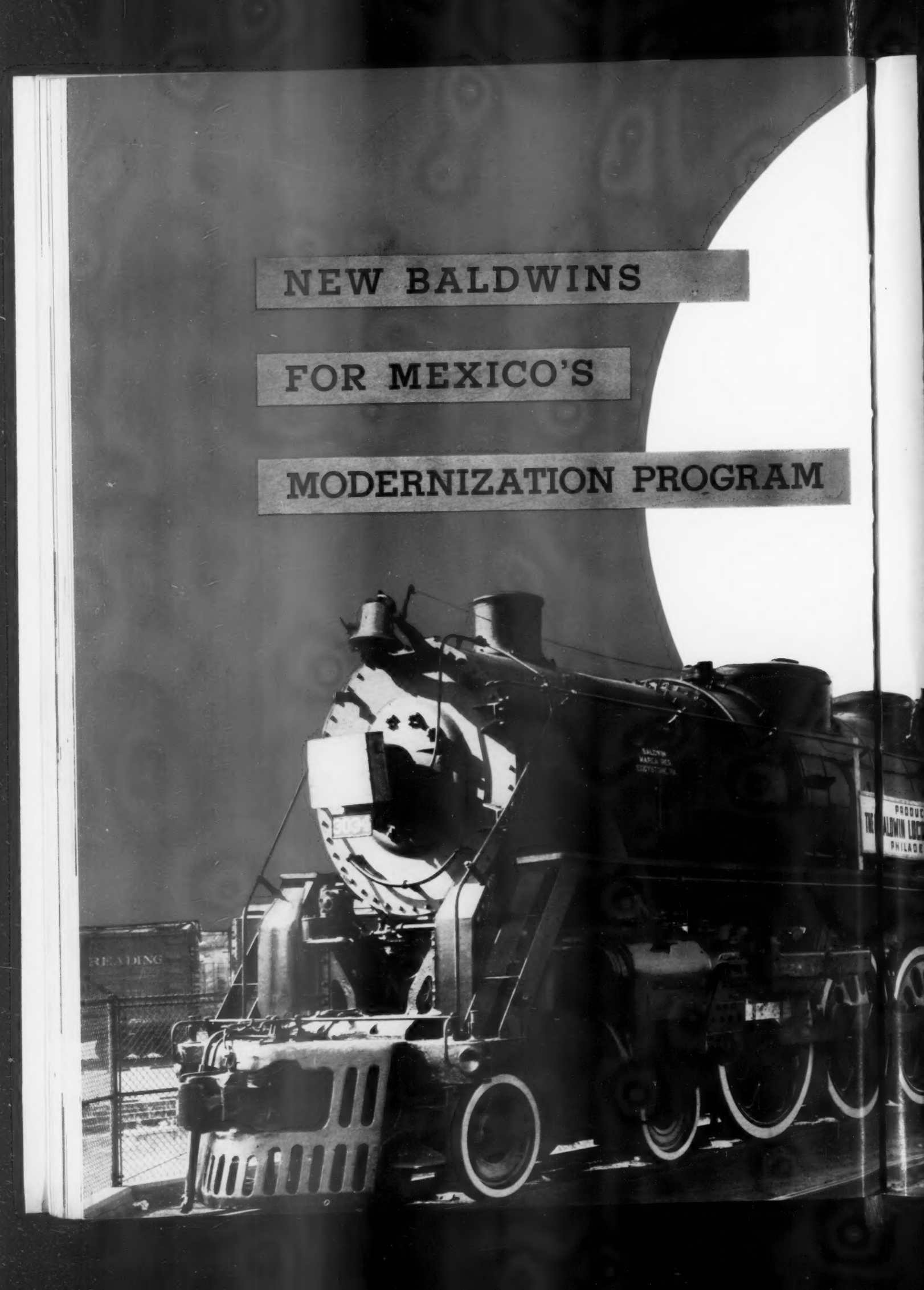


No matter how varied your requirements for rivets, you will find Bethlehem a dependable source of supply. A large Bethlehem Steel Company plant is devoted entirely to the manufacture of fastenings, and has complete facilities for the production of rivets of every size and type.

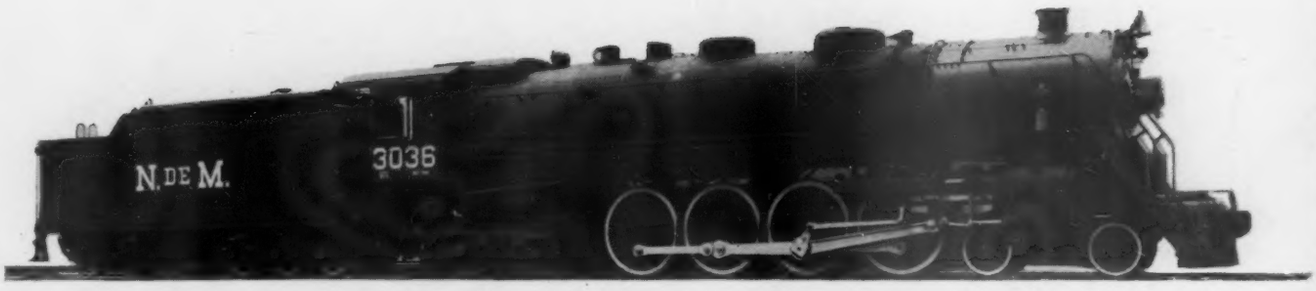
BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by
BETHLEHEM PACIFIC COAST STEEL CORPORATION

Bethlehem supplies every type of Railroad Fastening


NEW BALDWINS
FOR MEXICO'S
MODERNIZATION PROGRAM
READING

PRODUCT OF
PHILADELPH



The modernization program now being inaugurated by the Mexican National Railways, calls for new motive power which will permit heavier tonnage trains and improved schedules.

Baldwin is supplying much of this new equipment. Sixteen modern 4-8-4 type locomotives, like those illustrated, are now being delivered. Ten additional steam locomotives of the 2-8-0 type are on order.

Two Baldwin 2000-hp. diesel-electric locomotives have been in operation on the lines of the Mexican National Railways since August, 1945. The success of these diesel-electrics resulted in orders recently placed with Baldwin for one 2000-hp. and fourteen 3000-hp. diesel-electric locomotives of the most modern design.

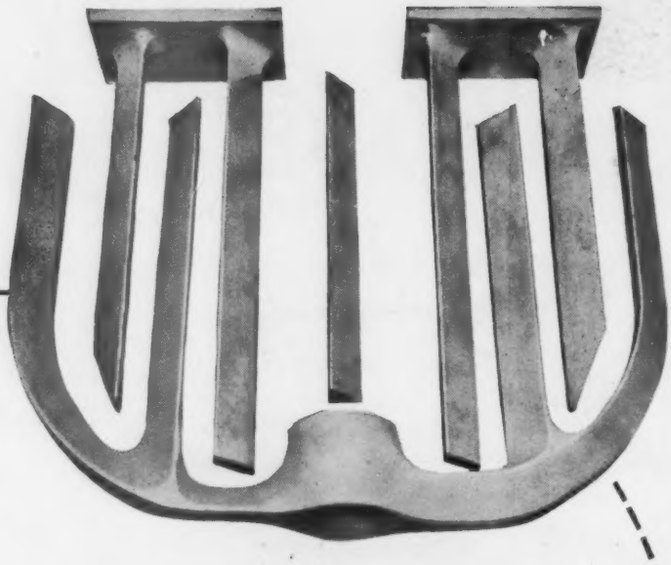
BALDWIN

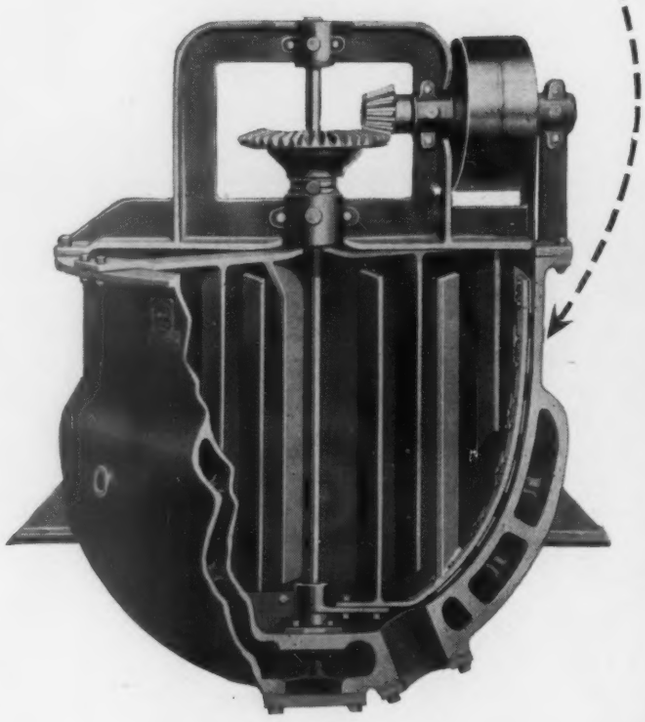
The Baldwin Locomotive Works, Philadelphia 42, Pa., U.S.A.
Offices: Philadelphia, Chicago, St. Louis, Washington, New York, Boston, San Francisco, Birmingham, Houston, Cleveland Detroit, Pittsburgh, Norfolk.

In this "mix-up"

STEEL CASTINGS

earned their place





The sweeps and paddles in this steam-jacketed kettle used to be weldments riveted to a forged steel hub and motorized drive shaft.

Now they are unit steel castings, as shown in the upper illustration, with all these advantages:

Greater resistance to bending and twisting—uniform strength and stiffness through all sections.

Abrupt sections and protrusions replaced by well-rounded, tapered contours. Resistance in mixing heavy materials greatly reduced. No clogging of materials on fillets, angles and rivet heads.

Perfect alignment and operating clearances.

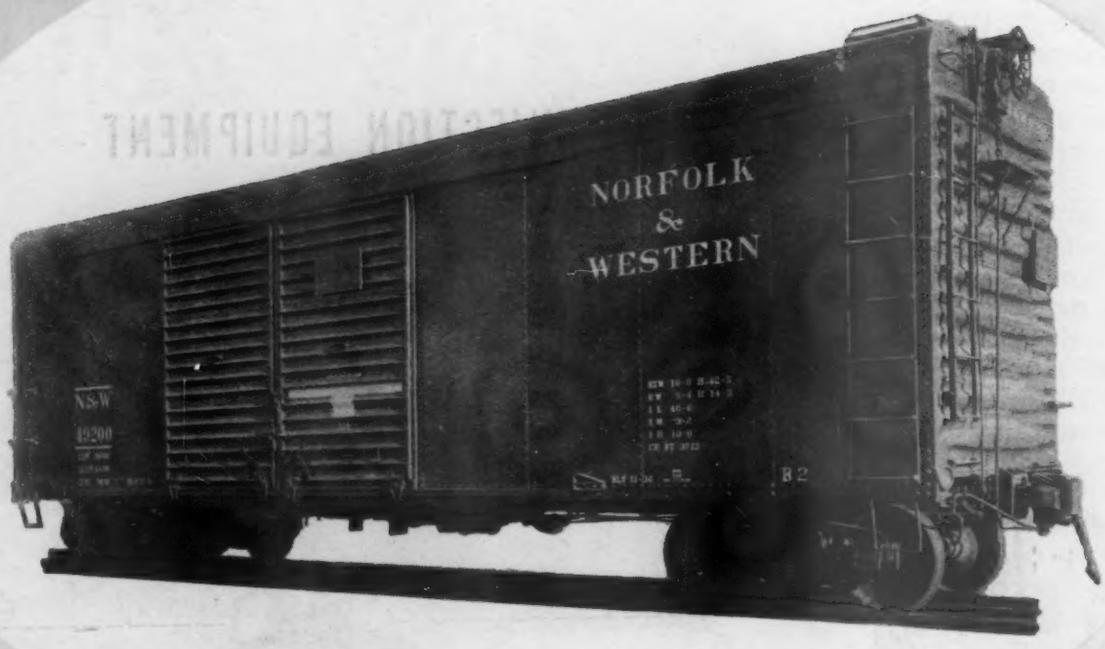
And finally, lower cost of production. Aren't these the very same characteristics you look for when buying parts?

The first step in building an improved product, or in cutting costs, is to plan it that way—a steel castings engineer can help you. Steel Founders' Society, 920 Midland Building, Cleveland 15, Ohio.

MODERNIZE AND IMPROVE YOUR PRODUCT WITH

STEEL CASTINGS

MAGOR



Designers and Manufacturers of Freight Cars of All Types Including Air Dump Cars...

MAGOR CAR CORPORATION

50 Church Street

New York 7, N. Y.

BENDIX-SCINTILLA

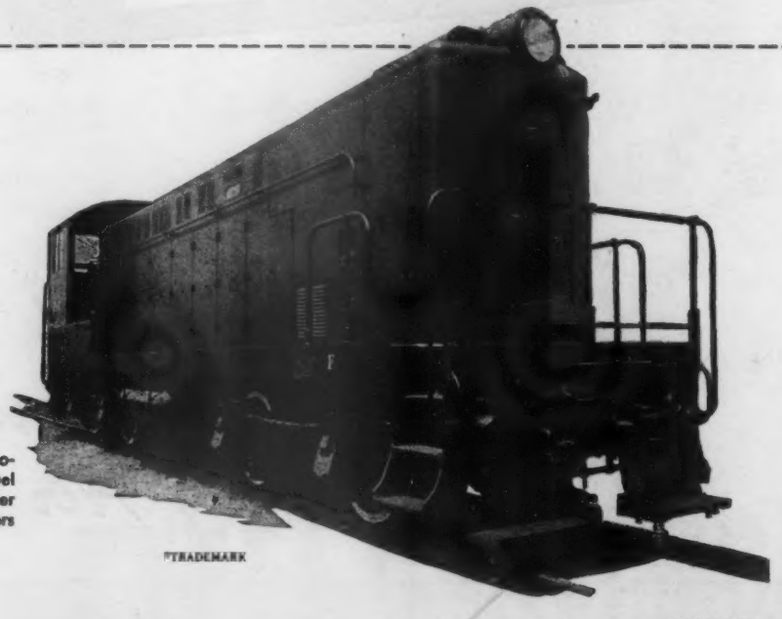
THE FINEST IN FUEL INJECTION EQUIPMENT

Day after day dependable performance on Diesel-electric locomotives everywhere is concrete evidence of the excellence of Bendix-Scintilla* Fuel Injection Equipment for railroad use. Proven by years of service on Diesel engines in many fields, this equipment meets the exacting requirements of railroad operation in both performance and dependability.

SCINTILLA MAGNETO DIVISION

Bendix Aviation Corporation, Sidney, N. Y.

PRODUCT OF Bendix AVIATION CORPORATION



Baldwin-Westinghouse Diesel-electric locomotives, equipped with Bendix-Scintilla Fuel Injection Equipment, are in operation on over 30 American railroads and on others abroad.

*TRADEMARK

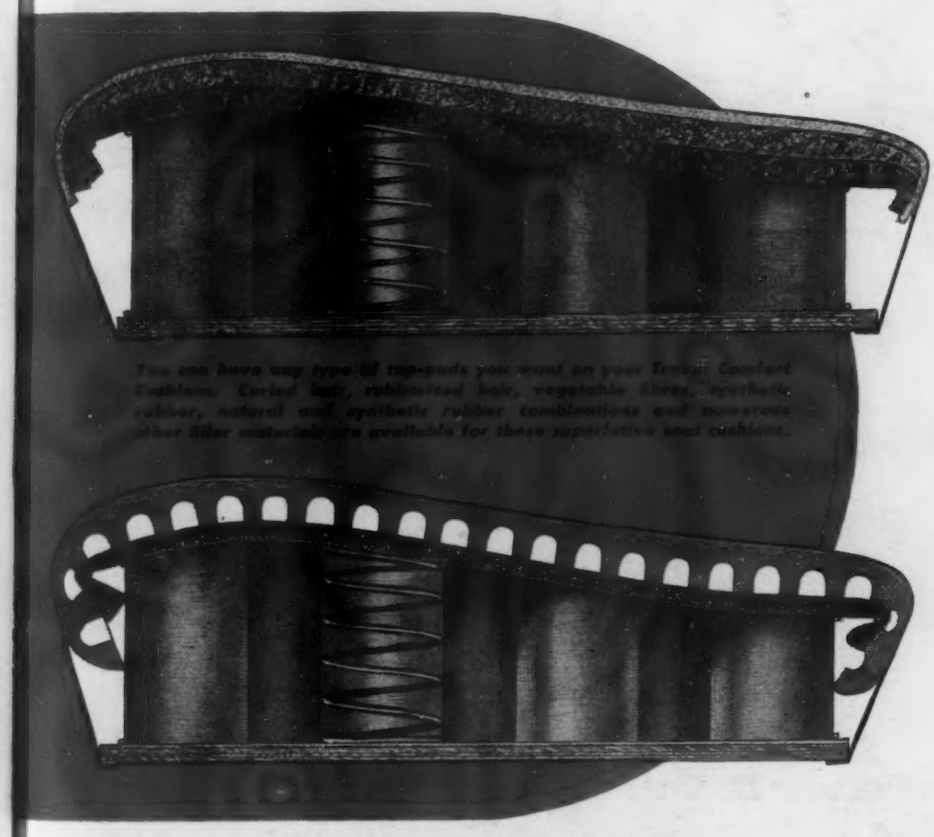
on LAND on SEA and in the AIR

TRAVEL COMFORT CUSHIONS

TRAVEL COMFORT CUSHIONS*

Qualify as Perfect Cushions

for Your Seating Requirements



You can have any type of top-pads you want on your Travel Comfort Cushions. Curled hair, rubberized hair, vegetable fibres, synthetic rubber, natural and synthetic rubber combinations and numerous other filler materials are available for these superlative seat cushions.

• Assured of maximum comfort, superlative beauty and freedom from maintenance troubles, TRAVEL COMFORT CUSHIONS* can fully meet your requirements for perfect seat cushions.

Comfort, beauty and permanent service are engineered into Travel Comfort Cushions.

Our cushioning engineers are concerned with the design of the cushion for each varying purpose, that it be comfortable, beautiful and have the permanent ability to function properly. Use of only the finest materials with skillful workmanship, strict supervision and rigorous inspection gives such assurance of sustained quality that

TRAVEL COMFORT CUSHIONS ARE

Fully Guaranteed

for comfort, beauty and trouble free maintenance on all installations for which originally designed and recommended. Leading carriers in all classes of transportation are now specifying these business building cushions for new and rehabilitated seating. May we explain fully?

*Trade Mark

TRAVEL COMFORT CUSHIONS *Ideal for* Train or Plane, For Bus or Truck, For Transit Cars or Cabs

McINERNEY SPRING AND WIRE COMPANY

Factories: Grand Rapids, Michigan, and Passaic, New Jersey

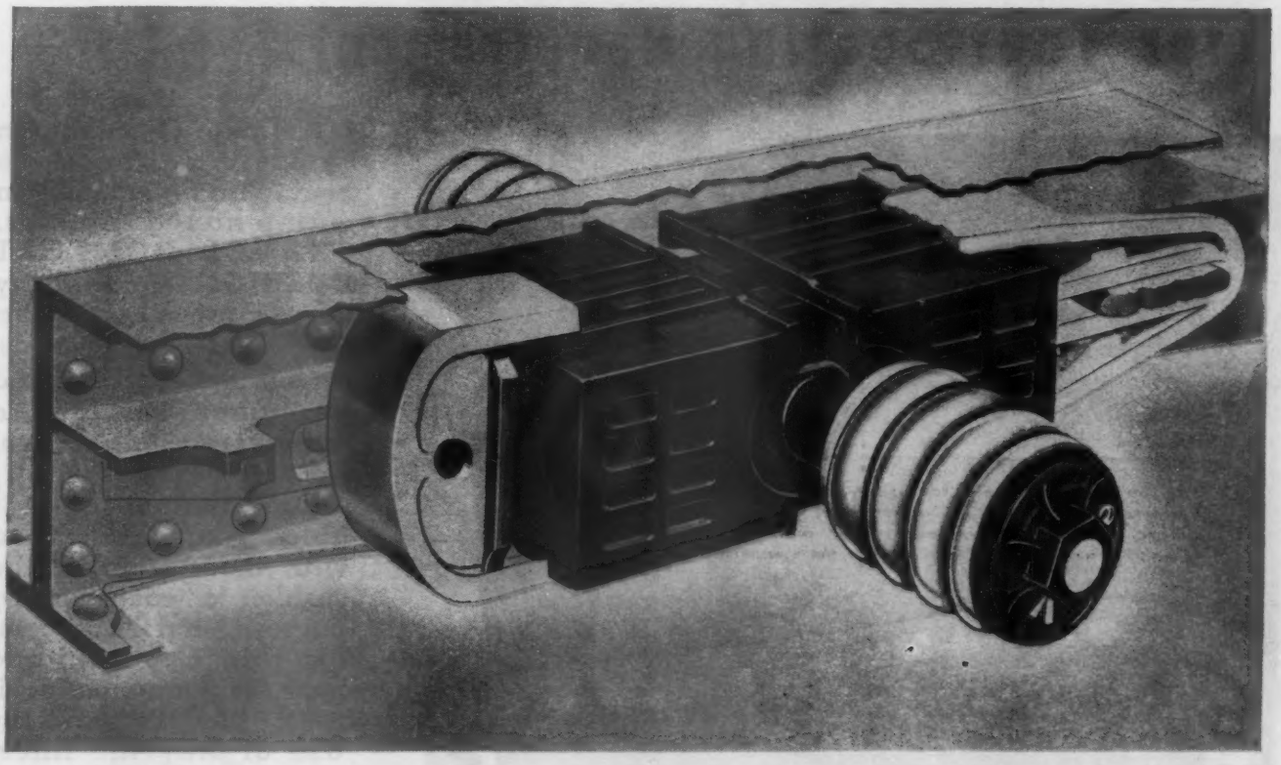
SALES OFFICES: 661 Godfrey Ave., S. W., Telephone 6-1481, GRAND RAPIDS

CHICAGO — 205 W. WACKER DRIVE — FRAnklin 5780

DETROIT — 911 FISHER BUILDING — MAdison 4425

Don't "Pass the Shocks"

to the Couplers, Underframe, Car Structure and Ladings



Cardwell Friction Draft Gears

Absorb and Dissipate Shocks at the Couplers

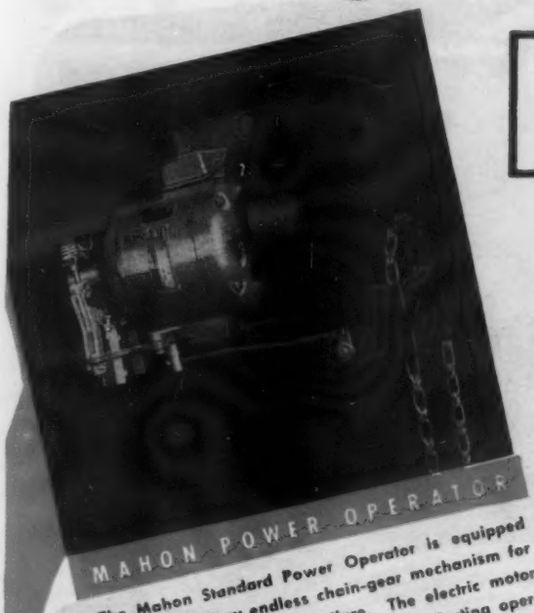
Modern Friction Draft Gears protect the entire car and lading from coupler to coupler . . . from rail to roof.

Over 98% of the cars in freight carrying service are A.A.R. construction, and over 96% have Friction Draft Gears.

Cardwell Westinghouse Co., Chicago
Canadian Cardwell Co., Ltd., Montreal

1139

Rolling Steel DOORS



MAHON POWER OPERATOR

The Mahon Standard Power Operator is equipped with an auxiliary endless chain-gear mechanism for use in case of electrical failure. The electric motor may be completely removed without affecting operation by means of the auxiliary chain-gear operator.

Manually • Mechanically • Power Operated

The complete line of Rolling Steel Doors, Grilles, and Shutters, manufactured by The R. C. Mahon Company embodies the latest developments in doors of this type . . . the ultra modern design of operating mechanisms, particularly the Standard Power Operator, offers many advantages in compactness and operation which are not available elsewhere. There is a Mahon Rolling Steel Door, Grille, or Shutter to meet every requirement. See Mahon Insert in Sweet's or consult a Mahon engineer.

THE R. C. MAHON COMPANY

Detroit 11, Michigan • Western Sales Division, Chicago 4, Illinois

Representatives in All Principal Cities

Manufacturers of Rolling Steel Doors, Shutters and Grilles, and Mahon Steel Deck for Roofs, Sidewalls, Partitions, Acoustical Ceilings, Permanent Floor Forms and Oversize Doors.

ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

MAHON

Otis maintenance man measuring the clearance between brake drum and brake lining. Standard clearance for the brake illustrated is six one-thousandths of an inch — or about twice the thickness of a human hair.

PERSONAL SERVICE BY THE MANUFACTURER

OTIS MAINTENANCE FOR OTIS ELEVATORS

Every elevator under Otis Maintenance receives attention that is made to order. Every inspection is a personal service; adapted to meet specific conditions, volume of traffic handled, and type of equipment installed.

This service is brought to your building through one of the 245 local Otis offices specializing in your requirements and the needs of your community.

It is important to note that Otis Maintenance does not stop there. Each local office is backed up and supervised by a Maintenance district office, which provides special tools and materials. Back of the districts are ten zone offices providing even greater facilities. Back of the zones is the headquarters organization with all of the engineering, research and production capacity of the manufacturer of more than half of the world's elevator equipment.

Through all of this organization your personal Maintenance service never loses its identity. Individual reports on performance are received and analyzed straight through to headquarters. Every resource of the entire Otis Elevator Company is devoted to making your service meet Otis standards.

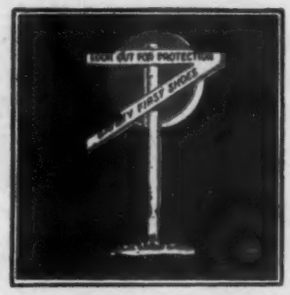
Complete, flat rate Maintenance Service for Otis elevators is available through your local Otis Elevator Company office.

Otis

ELEVATOR COMPANY

OFFICES IN ALL PRINCIPAL CITIES

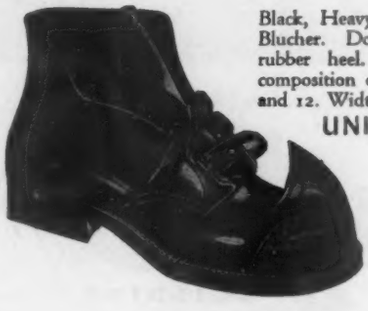
STOP
LOOK
LISTEN



On some twenty-three railroads in the United States our steel toe safety shoes can be purchased in the railroads' company stores on a pay roll deduction plan. If the railroad where you are employed is one of those having our service, you will find the right shoe for your job made of the right materials to give WEAR and also a correct fit to give COMFORT. Ask your nearest Railroad Stores Department for information.

Shoes for TRACKMEN — WAREHOUSEMEN — SHOPMEN — TRAINMEN — FOREMEN

HEAVY OUTSIDE WORK



Black, Heavy, Work-Shoe Leather Blucher. Double leather outsole, rubber heel. Also available with composition outsole. Sizes 5 to 11 and 12. Widths D, EE.

UNION MADE

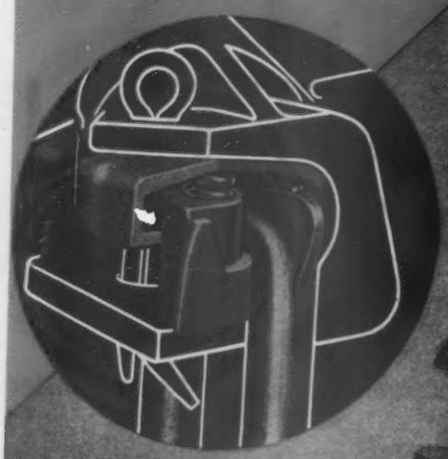
Safety First SHOE COMPANY

HOLLISTON, MASSACHUSETTS

Makers of Industrial Shoes for a Half Century

Eliminate all wear

ON SIDE FRAME BRACKETS



WITH

Schaefer

WEAR PLATES

● It's wise to spend a dime to save a dollar. Equip side frame brackets of all new cars with Schaefer Wear Plates. Let these long lasting replaceable plates take hanger wear and keep the side frames good as new.

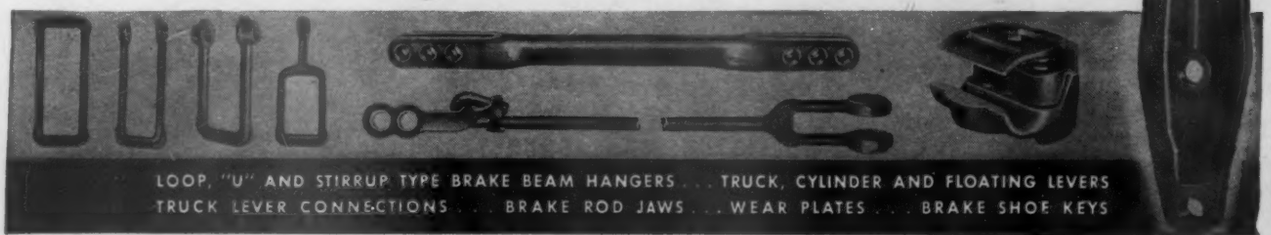
On old cars where wear on side frame brackets is a cause of poor brake operation, install Schaefer EVER-TITE Wear Plates and maintain continued good operation for years.

Several types to fit all needs.

Write for complete Catalog No. 445.

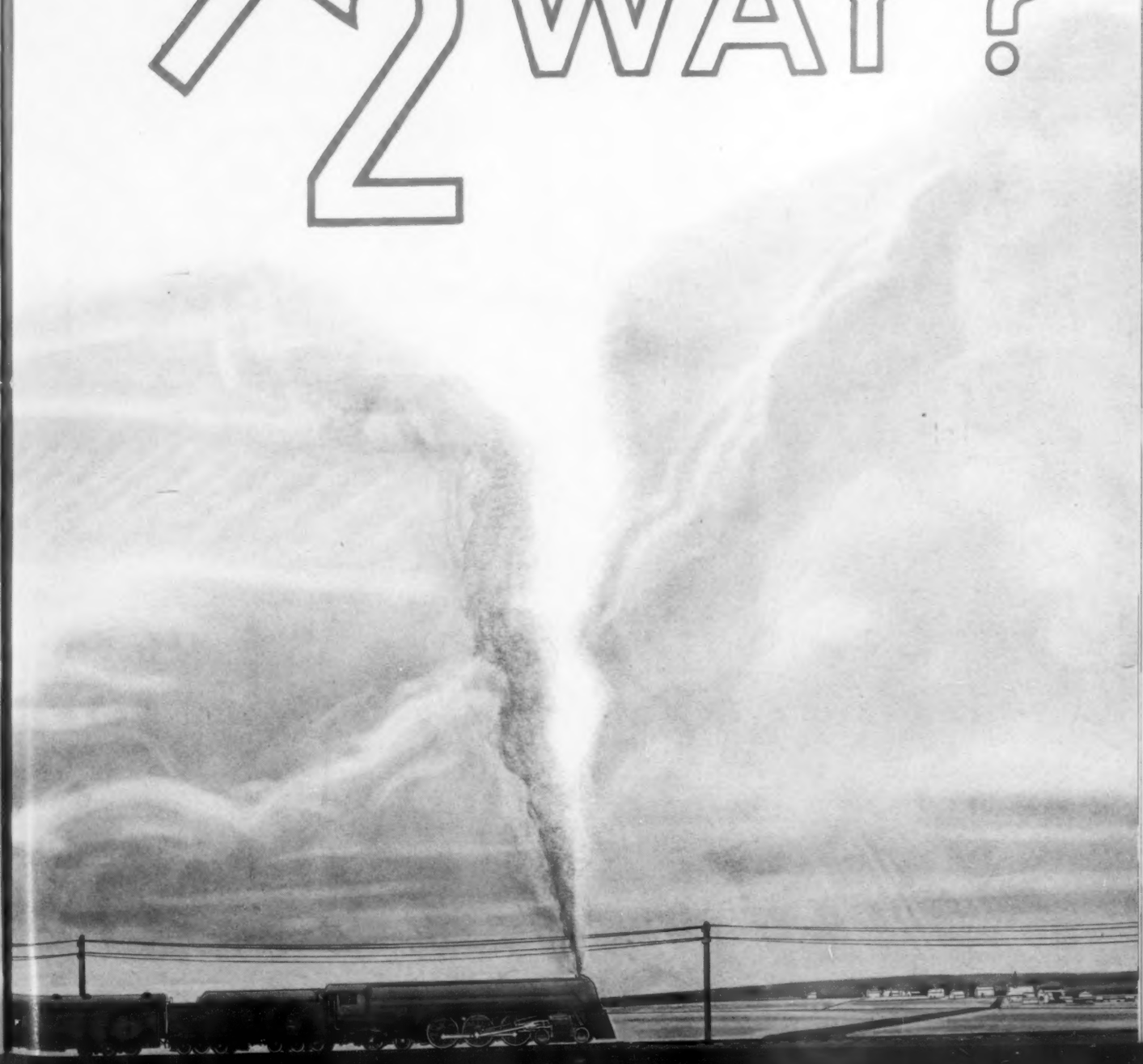
Schaefer EQUIPMENT COMPANY

KOPPERS BUILDING • PITTSBURGH, PA.



LOOP, "U" AND STIRRUP TYPE BRAKE BEAM HANGERS . . . TRUCK, CYLINDER AND FLOATING LEVERS
TRUCK LEVER CONNECTIONS . . . BRAKE ROD JAWS . . . WEAR PLATES . . . BRAKE SHOE KEYS

WHY STOP ½ WAY?



WHY NOT HAVE PASSENGERS SAY:

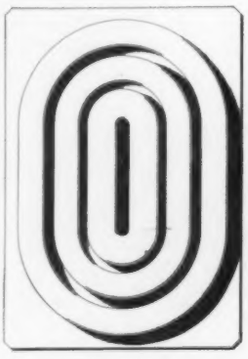
"Even in coaches today you get real riding comfort"

To meet the competition of planes, buses, and automobiles, railroads can present one argument. They can offer *more* solid comfort.

Passengers want 100% comfort, not "Half-Way Comfort!"

Easy chairs and air conditioning are not enough. Real comfort means a restful ride, free from tiring jerks, jolts and jars . . . the ride that is assured when a train is 100% equipped with Waughmat Twin-Cushions.

Equip your new and existing cars with Waughmat Twin-Cushions. It's an investment in passengers' good will that will pay big dividends in continued patronage.



WAUGHMAT

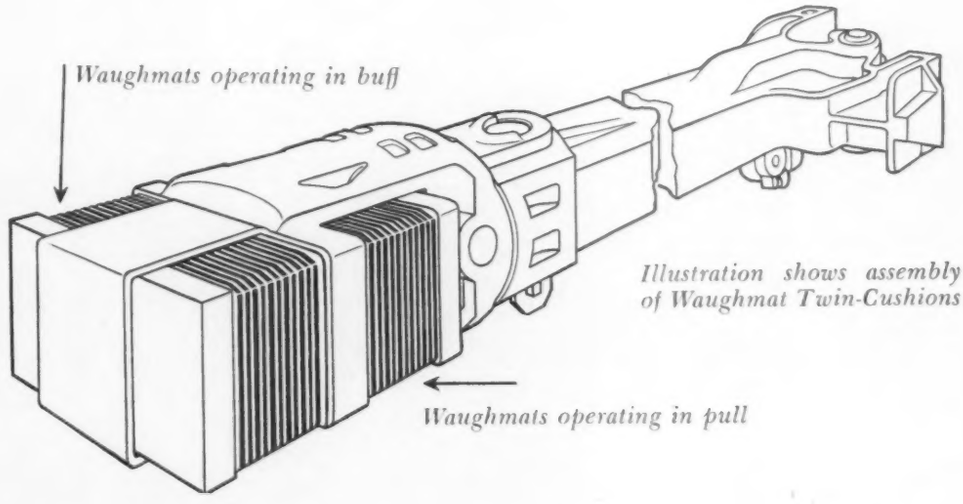
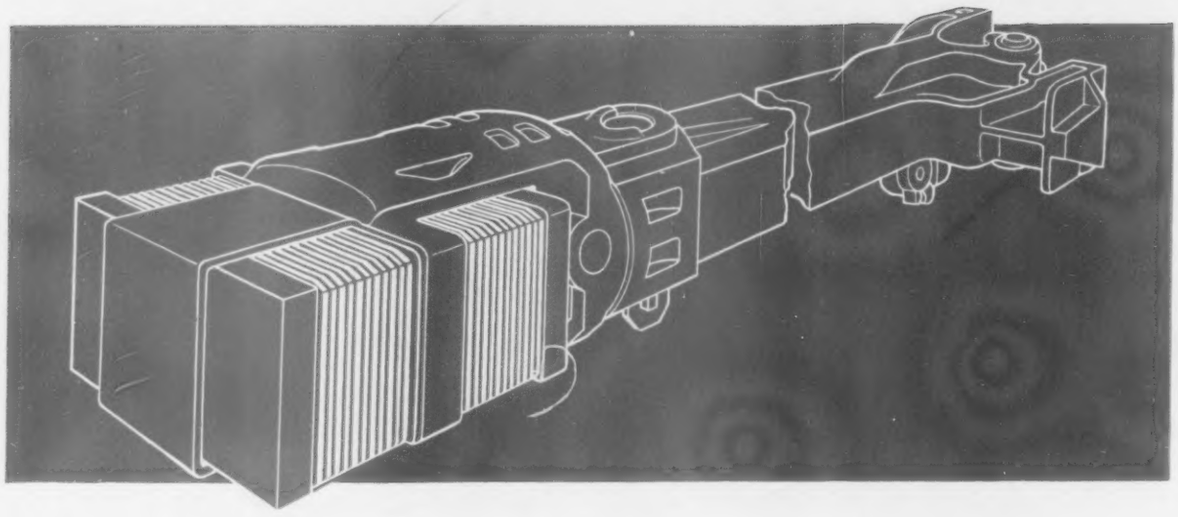


Illustration shows assembly of Waughmat Twin-Cushions

MODERNIZE with

WAUGHMAT *Twin Cushions*



WAUGHMAT TWIN CUSHIONS

HAVE NO SOLID POINT

One of the reasons why these progressive railroads are equipping their newest and finest cars with Twin Cushions

PENNSYLVANIA
UNION PACIFIC
NEW YORK CENTRAL
MISSOURI PACIFIC
ERIE ● ROCK ISLAND
SOUTHERN PACIFIC
ATLANTIC COAST LINE
LOUISVILLE & NASHVILLE
BURLINGTON
NEW HAVEN
NORTHERN PACIFIC
NORTH WESTERN
TEXAS & PACIFIC
PERE MARQUETTE
GREAT NORTHERN
CHESAPEAKE & OHIO
KANSAS CITY SOUTHERN
ST. LOUIS-SAN FRANCISCO
CHICAGO & EAST ILLINOIS
WABASH ● SANTA FE
GULF MOBILE & OHIO
BOSTON & MAINE
ILLINOIS CENTRAL
CANADIAN PACIFIC
MAINE CENTRAL
WESTERN PACIFIC
NORFOLK & WESTERN
PULLMAN COMPANY
CHICAGO, GREAT WESTERN
GENERAL MOTORS (Astra Liner)
N. Y., CHICAGO & ST. LOUIS
SEABOARD ● RIO GRANDE
MISSOURI, KANSAS, TEXAS
BALTIMORE & OHIO
RICHMOND, FREDERICKS-
BURG & POTOMAC

WAUGH EQUIPMENT COMPANY

New York **Chicago** **St. Louis**

Canadian Waugh Equipment Company: Montreal

NOW ADD CONVENIENCE

TO YOUR LUXURIOUS NEW CARS

NP

AUTOMATIC

END DOOR OPERATORS

provide finger-tip control for hard-to-open end doors

CONVENIENCE for passengers is a "must" in this highly competitive travel business.

Americans are completely sold on new modern coaches, compartment cars, comfortable lounges and fine diners—but are you making your latest attractions easily accessible? *Are you streamlining the hard-to-open end doors?*

End doors, of either the sliding or swinging type, equipped with N. P. automatic operators, are instantly obedient to your passengers' fingertouch. Doors open and close effortlessly and safely. And the action is timed to prevent unnecessary loss of conditioned air.

Write today for full information.

NATIONAL PNEUMATIC COMPANY

GRAYBAR BLDG., NEW YORK • McCORMICK BLDG., CHICAGO • RAHWAY, N. J.

Distributed in Canada by Railway & Power Engineering Corp., Ltd.

WORLD'S LARGEST BUILDER OF DOOR CONTROL EQUIPMENT

FOR MASS TRANSPORTATION VEHICLES

Recently constructed concrete pile and slab bridge over the Neuse River on the Atlantic Coast Line near Goldsboro, N. C.

Every fifth bent in the Neuse River bridge is an anchor bent with double row of piles.

CONCRETE Pile and Slab Trestles Demonstrate Long Term Economy

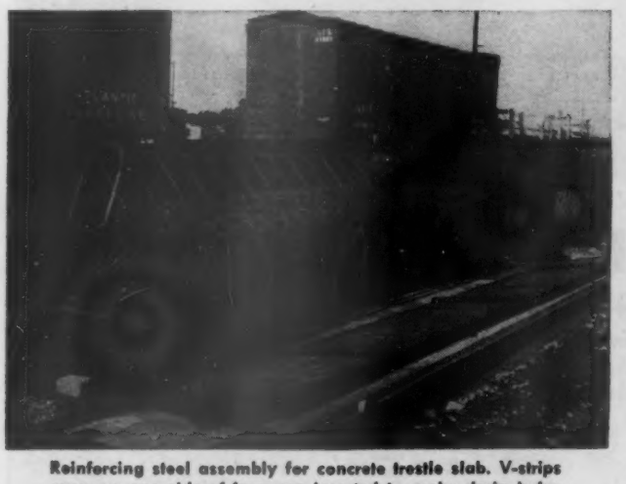
Assembling steel forms for concrete piles. Reinforcing steel is suspended by wires from spacer yokes which hold form in position at top.

Concrete pile and slab trestles adapted as standard in 1926 by the Atlantic Coast Line in a trestle replacement program have conclusively demonstrated long life, low maintenance expense and firesafety. This construction continues to be standard on the Atlantic Coast Line.

PORTLAND CEMENT ASSOCIATION

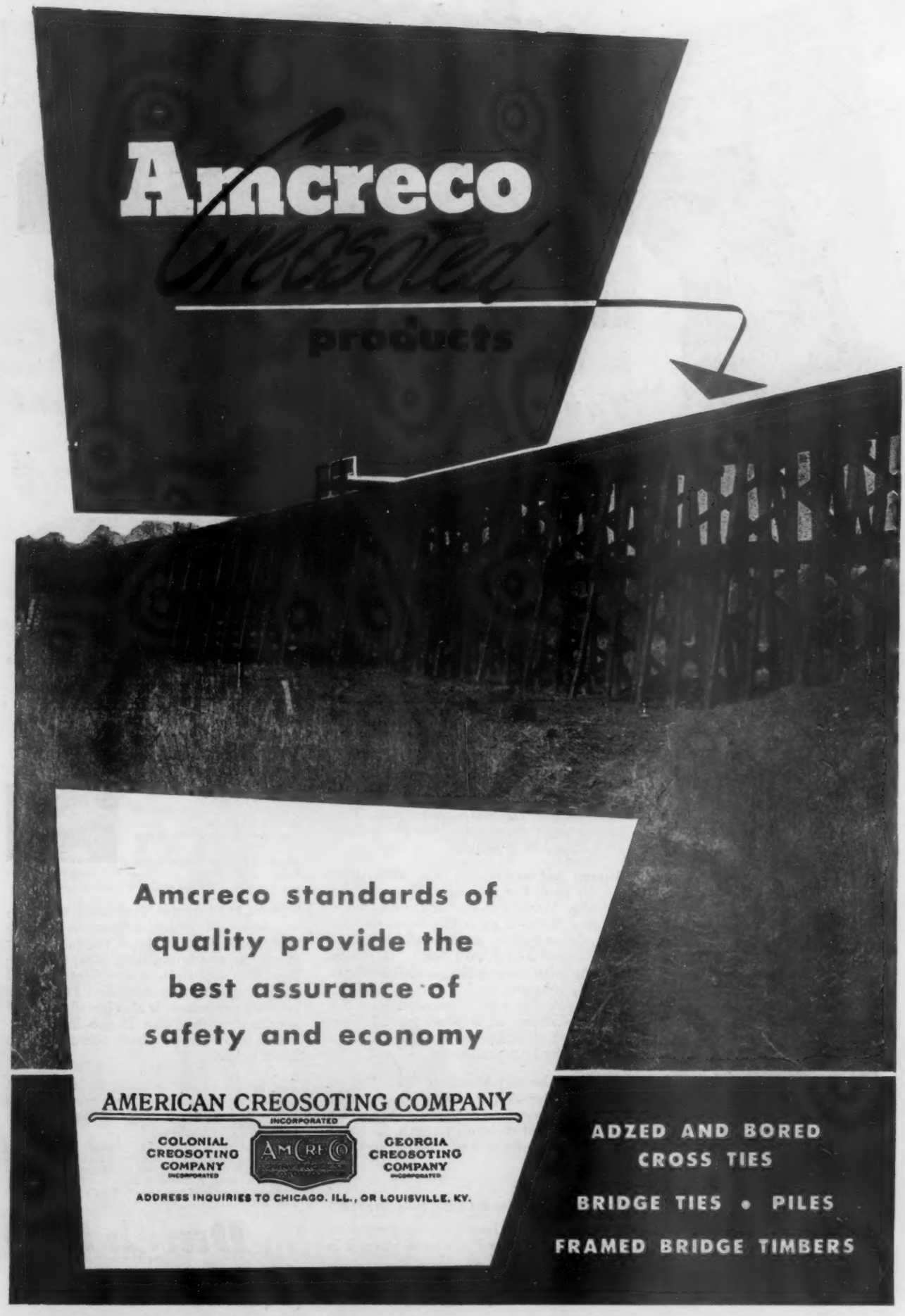
Dept. 9b-26, 33 W. Grand Ave., Chicago 10, Ill.

A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work.



Reinforcing steel assembly for concrete trestle slab. V-strips seen on one side of form are inserted to make drain holes between abutting slabs.

Finished concrete piles loaded on car ready for shipment from Atlantic Coast Line casting yard. Lifting rings cast in piles to facilitate handling are burned off when pile is driven.



Amcreco standards of quality provide the best assurance of safety and economy

AMERICAN CREOSOTING COMPANY
INCORPORATED

COLONIAL CREOSOTING COMPANY INCORPORATED

AMCREO

GEORGIA CREOSOTING COMPANY INCORPORATED

ADDRESS INQUIRIES TO CHICAGO, ILL., OR LOUISVILLE, KY.

ADZED AND BORED CROSS TIES

BRIDGE TIES • PILES

FRAMED BRIDGE TIMBERS

Red Lead "Soaps"

help make Paint Film Tough...Flexible...Water-Resistant

While maintenance engineers know, by long experience, that Red Lead helps *make metal last* . . . and widely accept it as the standard metal protective paint . . . it remained for modern science to show exactly *why* Red Lead so effectively inhibits rust.

One of the important reasons is Red Lead's ability to react with the vehicle, and produce unique lead "soaps."

These soaps grow to form a tough, impervious, intermeshing matrix within the paint film, as shown in the photomicrograph at right.

The soap formations increase Red Lead's protective power in several ways. For one thing, they *mechanically* reinforce and toughen the paint film.

At the same time they contribute all-important flexibility, allowing movement all along their soft, intertwining projections. This helps prevent the ruptures to which a hard unyielding film is subject.

Moreover, lead soaps slowly form primarily in the dry paint film as it ages. This is where the soap formations impart their greatest benefits. When a paint film weathers and ages, decomposition products of the vehicle are formed. Red Lead's ability to slowly combine with these decomposition products actually enhances the life of the paint film. Red Lead's slow rate of reaction means the film age-hardens at a slower rate. It thus retains a high degree of flexibility, a great factor in its lasting adhesion.

And again, the very structural formation of the soaps, with their dense, impermeable matrix of interwoven fibres, helps to restrict the passage of moisture through the paint film. Metal cannot rust without the presence of moisture.

Specify RED LEAD for ALL Metal Protective Paints

The value of Red Lead as a rust preventive is most fully realized in a paint where it is the only pigment used. However, its rust-resistant properties are so pronounced that it also improves any multiple pigment paint.

No matter what price you pay, you'll get a better paint for surface protection of metal if it contains Red Lead.

***This photomicrograph** shows the distinctive lead soap formations resulting from Red Lead's reaction with the vehicle. Note how the rod-like projections, radiating from central cores, spread out and intermesh. This makes a strong, flexible, interwoven structure, just as individual fibres in a piece of cloth are woven to make the cloth strong and durable. This type of soap formation is unique with lead paint films.*

***Here you see** the standard apparatus used for measuring the water permeability of paint films.*

With this equipment a measure of the amount of water that passes through a unit of film is obtained.

Experiments show that a straight linseed oil film allows three times as much water to pass through the film as when the same film is pigmented with Red Lead . . . illustrating once more the beneficial protective action of Red Lead and Red Lead "soaps."

Write for New Booklet—"Red Lead in Corrosion Resistant Paints" is an up-to-date, authoritative guide for those responsible for specifying and formulating paint for structural iron and steel. It describes in detail the scientific reasons why Red Lead gives superior protection. It also includes typical specification formulas. If you haven't received your copy, address nearest branch listed below.

* * *

The benefit of our extensive experience with metal protective paints for both underwater and atmospheric use is available through our technical staff.

NATIONAL LEAD COMPANY: New York 6; Buffalo 3; Chicago 80; Cincinnati 3; Cleveland 13; St. Louis 1; San Francisco 10; Boston 6, (National Lead Co. of Mass.); Philadelphia 7, (John T. Lewis & Bros. Co.); Pittsburgh 30, (National Lead Co. of Pa.); Charleston 25, W. Va., (Evans Lead Division.)

Dutch Boy
Reg. U. S. Pat. Off.
Red Lead

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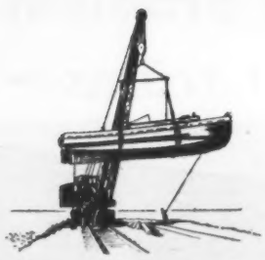
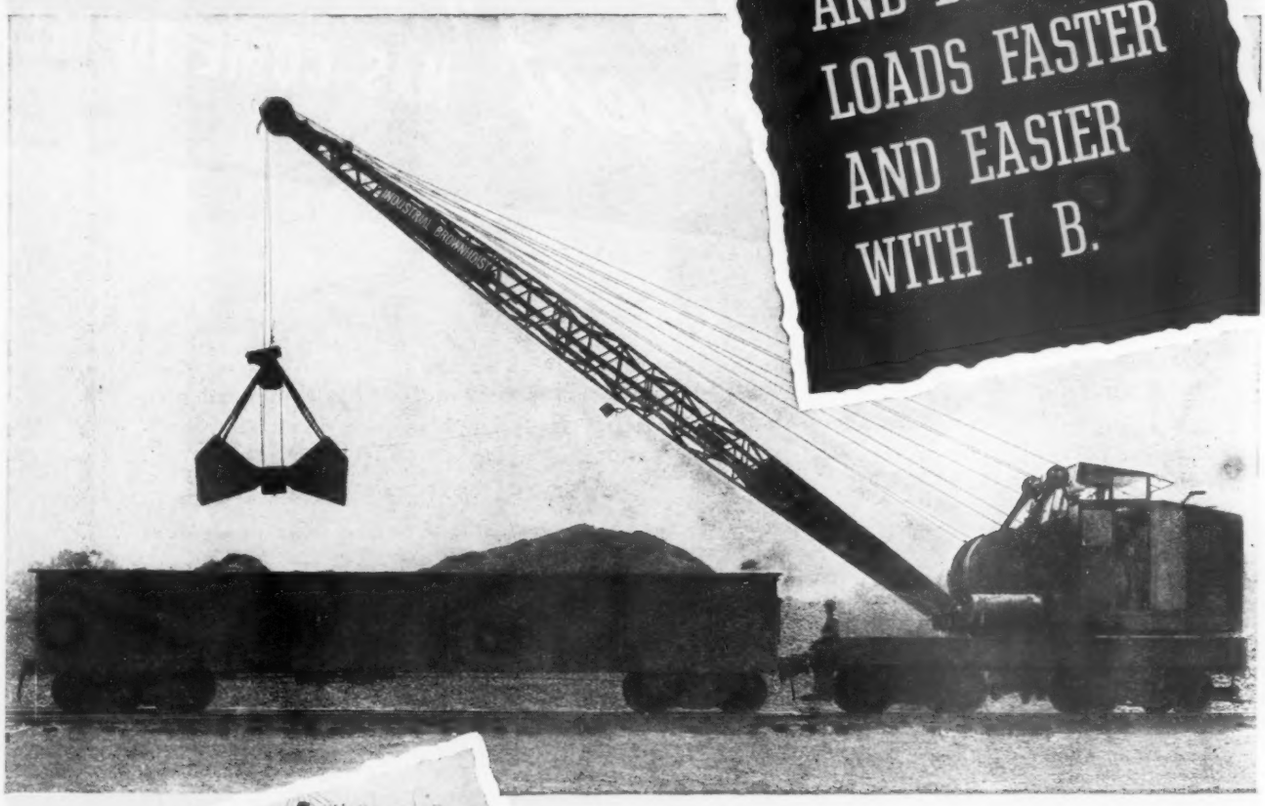


MOVE MORE AND BIGGER LOADS FASTER AND EASIER WITH I. B.



There are sound reasons why Industrial Brownhoist locomotive cranes, car dumpers, coal and ore bridges, and other materials handling devices continue to lead in fast, economical movement of heavy loads. Just consider a few of the many outstanding advantages engineered into I.B. locomotive cranes. Swift, sensitive response to air-operated controls—easy handling! Anti-friction bearings at all essential points—minimum maintenance! Rotating and travel friction disc clutches with one-point adjustment—less wear and strain! One-piece massive cast steel bed—insures rigidity of mechanism! Patented Monitor-type cab—safe 360° visibility! For expert assistance in solving your special or general purpose materials handling problems, get in touch with Industrial Brownhoist—first! • This giant I.B. Great Lakes type car dumper typifies the power, strength, and stamina that are designed and built into all Industrial Brownhoist equipment. It handles loaded coal cars up to 120 ton capacity, lifting and dumping them like toys.

INDUSTRIAL BROWNHOIST BUILDS BETTER CRANES

INDUSTRIAL BROWNHOIST CORP. • BAY CITY, MICH. • District Offices: New York, Philadelphia, Cleveland, Chicago • Agencies: Detroit, Birmingham, Houston, Denver, Los Angeles, San Francisco, Seattle, Vancouver, B.C., Winnipeg, Canadian Brownhoist Ltd., Montreal, Quebec.

Because it so economically meets the problem of increasing the payload of freight trains—

"COR-TEN Equipment" HAS COME TO MEAN 'th

More than a decade ago, when we asked leading railway engineers what they needed to provide lighter, more efficient designs — that would increase pay load, cut dead-weight safely—that would sacrifice nothing in maintenance costs or service life—their answers were virtually identical.

First of all they wanted *greater strength*, that by permitting a decrease in section would reduce weight.

- ***U·S·S COR-TEN'S minimum yield point of 50,000 p.s.i. is one and one-half times that of plain structural steel.***

They next demanded increased corrosion resistance to offset reduction in section thickness.

- ***U·S·S COR-TEN'S resistance to atmospheric corrosion is 4 to 6 times that of plain steel, is 2 to 3 times that of copper steel.***

Then they wanted a composition that, in the as-rolled condition, would form easily, hot or cold, that could be readily welded without heat treatment and without annealing or stress-relieving.

- ***U·S·S COR-TEN meets all these requirements. It fabricates readily and can be handled on the same equipment as carbon steel.***

Finally they wanted a steel of relatively low cost.

- ***U·S·S COR-TEN'S initial cost per pound is less than 50% higher than plain carbon steel. But, by skillfully lightened design and the proper fabricating methods the cost of the finished structure is, in many instances, little if any more. In some cases it actually costs less in terms of tons capacity.***

• • •

To date more than 67,000 freight cars of all types have been built lighter, stronger and of greater capacity with U·S·S COR-TEN. Our intimate association with the builders of this equipment enables us to place at your disposal an unequalled experience in lightweight construction that your engineers are sure to find helpful.

AMERICAN STEEL & WIRE COMPANY, *Cleveland, Chicago and New York*
CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
NATIONAL TUBE COMPANY, *Pittsburgh*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*
United States Steel Supply Company, Chicago, *Warehouse Distributors*
United States Steel Export Company, New York

USS HIGH STRENGTH STEEL UNITED STATES STEEL

UNITED STATES STEEL

'the best in lightweight construction'

SCORING POWER

Gould Plante Batteries deliver more power longer

Gould Plante Batteries stay in the game. When used in railway signal systems, they deliver power to meet every requirement, and continue to deliver that power through long years of service.

PURE LEAD FOR LONGEST LIFE

And here is the reason why—

Gould Plante Batteries have positive plates made of one-piece, pure lead. Ribbed to increase surface area, these plates go through an electro-chemical treatment that converts all this surface to active material.

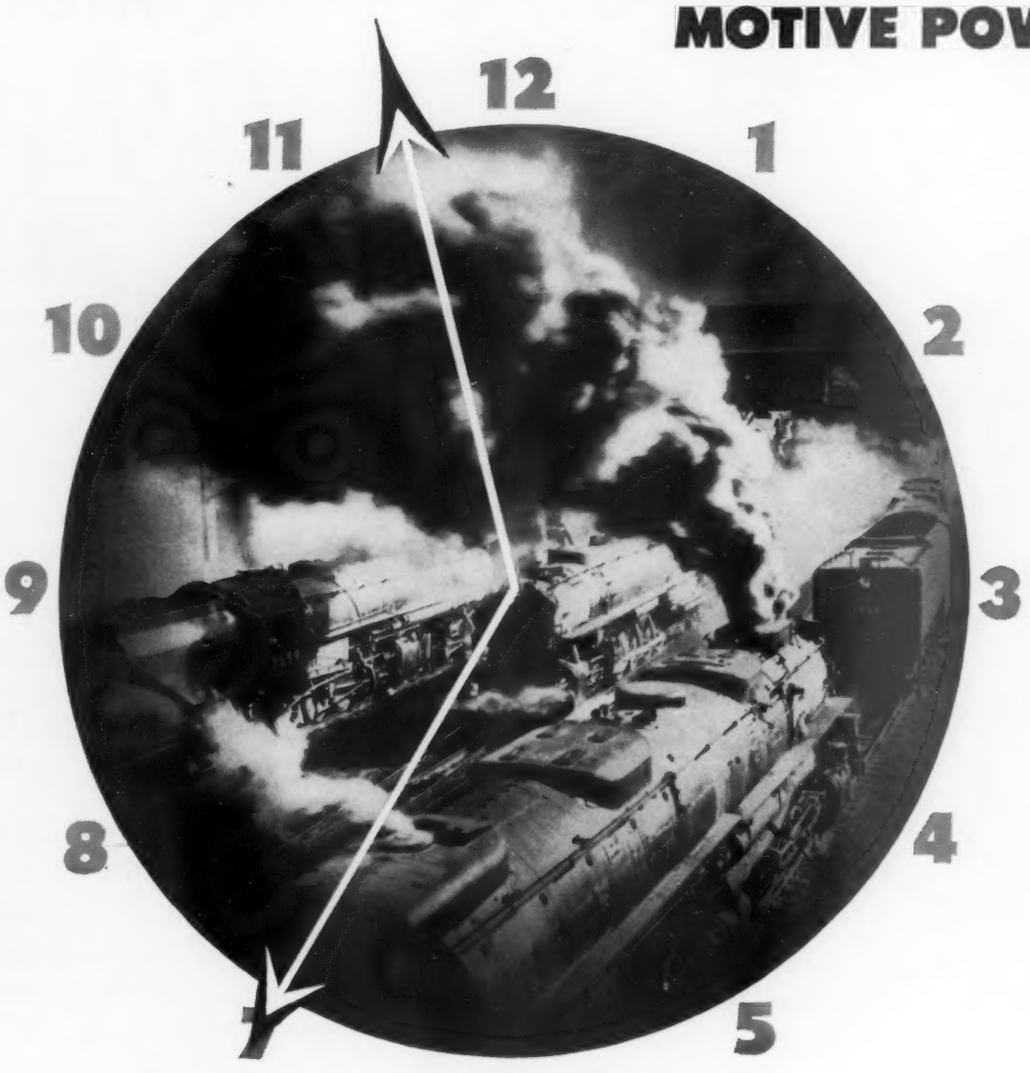
In Gould Plante there is more positive active material which, because it is chemically a part of the plate, is maintained in volume by normal cell action. That means more power throughout a longer service life.

You'll find Gould Plante best for railway signals. Get the Facts. Write Dept. 159 for Catalog 900 on Gould Railway Signal Batteries.

GOULD Plante

GOULD STORAGE BATTERY CORPORATION, Depew, N. Y.
Service Centers: Atlanta • Boston • Buffalo • Chicago • Cincinnati
Cleveland • Detroit • Kansas City • Los Angeles • New York
Philadelphia • Pittsburgh • St. Louis • St. Paul • San Francisco • Seattle

INCREASE THE AVAILABILITY OF YOUR MOTIVE POWER



Specify **N • B • M**

BRONZE BEARINGS • ROD BUSHINGS

ENGINE CASTINGS

They resist wear and reduce lay-off time for maintenance.

NATIONAL BEARING

DIVISION

ST. LOUIS • NEW YORK

AMERICAN Brake Shoe COMPANY

PLANTS IN: ST. LOUIS, MO. • PITTSBURGH, PA. • MEADVILLE, PA. • JERSEY CITY, N. J. • PORTSMOUTH, VA. • ST. PAUL, MINN. • CHICAGO, ILL.

This 44-TONNER RETURNS 17% IN ONE YEAR . . .

. . . YET IS WORKED ONLY 8 HOURS A

The Arcade and Attica is one of the many short line railroads which have learned that this 44-ton diesel-electric is the most economical answer to their motive-power problems. Unusually versatile, it performs equally well in road, yard, or transfer service.

In 1941, this upstate New York road put one of these diesel-electrics into operation and retired its old steamer. Since then, working only eight hours a day, the 44-tonner has handled all the road work over the 28-mile line, all the yard work in both towns, and all the switching along the line and in industrial plants.

Despite one-shift-per-day operation, the locomotive has proved to be an excellent investment. Service to shippers has improved—winning new customers for the A & A—and operating costs have been greatly reduced. In 1944, the diesel-electric saved over $6000, a return of 17 per cent on the investment.

If these results can be obtained when operating only one shift per day, you can earn even more by working this locomotive longer hours. It is available 22 hours a day, and has the versatility you need to utilize every minute of this time. To determine the savings this 44-tonner can effect on your road, we will be glad to co-operate with your organization in analyzing your operations.

Alco GE

AMERICAN LOCOMOTIVE

A DAY!

A DAY ON THE A & A

5:00 A.M. **Engineer unlocks engine house, starts locomotive. Only delay is to pump up air—no coal to shovel, and no head of steam to build up.**

5:20 A.M. **Pull train to station—gentle coupling is easy on lading.**

5:30 A.M. **Pick up car from milk plant. Absence of smoke and soot is doubly important to this company.**

6:00 A.M. **Back at the station and ready to pull out for Attica. Drowsy citizens appreciate the 44-tonner's quietness at this hour of morning.**

7:07 A.M. **Varysburgh. Going into a short-curve siding to pick up an empty is no trouble with the diesel-electric's short, rigid-wheel base swivel trucks.**

7:45 A.M. **Attica, right on time. Now an hour and a half of switching and transfer work before starting the return trip.**

8:30 A.M. **Deliver a coal car to the state penitentiary; so far we've always come out with no extra "passengers" on board!**

9:20 A.M. **Ready for the return run. It's up grade for the first 20 miles with eight miles of .84% grade, the 44-tonner makes it easily.**

10:00 A.M. **Unscheduled stop—that critter didn't even have a ring in his nose. But the diesel-electric's smooth, fast acceleration helps in making up lost time.**

11:05 A.M. **Back in Arcade on schedule, despite the stop.**

11:20 A.M. **Leave the way car on the "Y"; over to the milk plant with an empty; then to the interchange with outgoing cars**

1:00 P.M. **Make up next day's train. "44 tons with a punch" makes quick work of this job.**

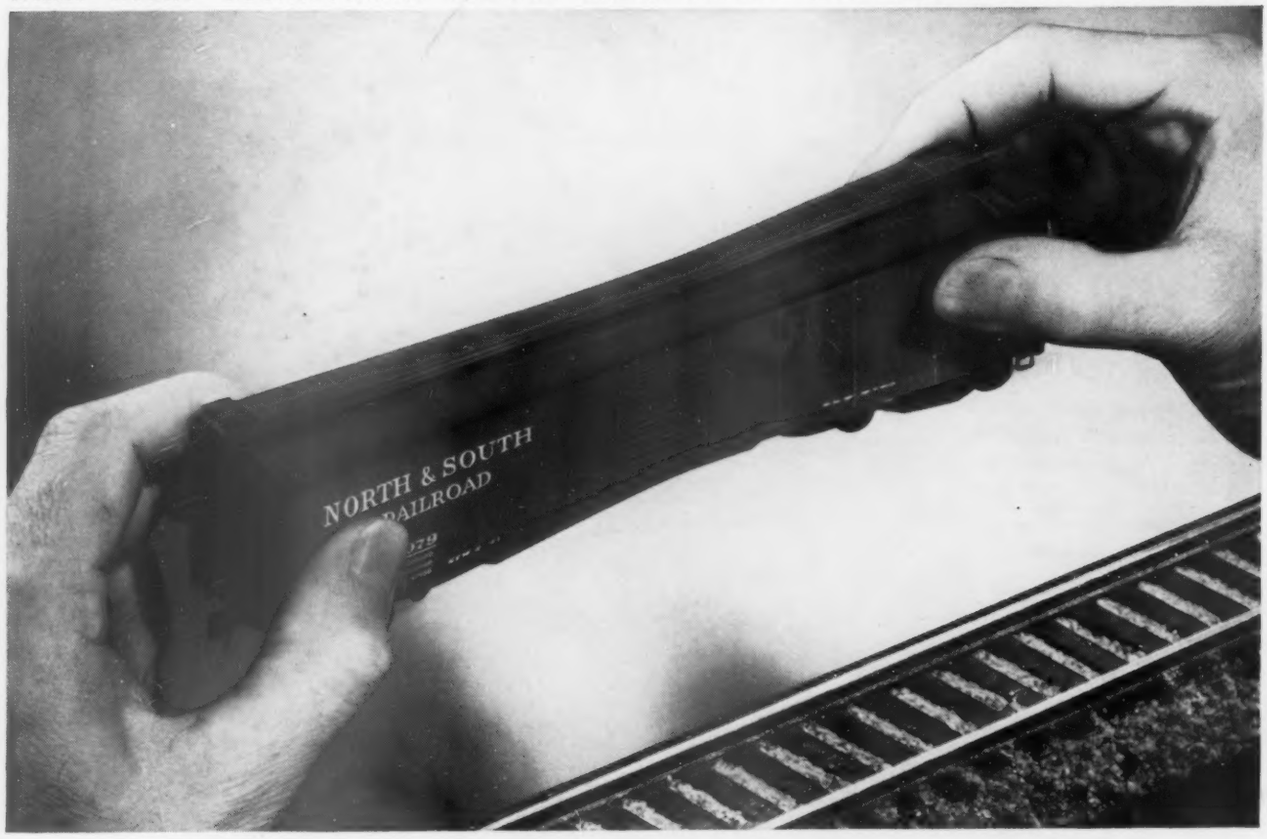
3:00 P.M. **Replenish supplies for tomorrow's work—check sand, water for the radiators, fuel oil, lube oil, and battery. Easy, isn't it? No ash removal, no coal handling.**

3:30 P.M. **Don't forget to lock the engine house on the way out.**

and GENERAL ELECTRIC

121-37-0680

WHAT EVERY BUSINESSMAN SHOULD KNOW ABOUT HIS PARTNER—THE RAILROADS



WANTED: FREIGHT CAR STRETCHERS

We've never seen one—but they'd be mighty handy right now. There's a record-breaking harvest now being moved by the railroads. Industrial production is rising. There just aren't enough freight cars to move all the traffic as quickly and efficiently as we'd like.

During the war, the railroads couldn't obtain all the new cars they needed. Even now, material shortages and other difficulties are holding up freight car construction. And an ever-increasing number of freight cars are wearing out due to heavy wartime service.

The average freight car load has decreased in the last year. More cars are carrying less-than-carload lots. And the adoption of the five-day week by many industries has increased the time that cars stand idle waiting to be loaded or unloaded.

If the average time it takes each car to handle a load could be reduced by *one day*, it would add the equivalent of 100,000 cars to the nation's supply. Railroads are striving to reduce this "turn-around" time by speeding up the hauling, switching and repair of cars wherever possible. Shippers and receivers of freight can help stretch freight cars by loading and unloading them *at least six full days a week.*

Working together, as they did so successfully during the war, railroads and shippers can overcome these shortages and avoid business losses.

•

FREE! Write to Room 947 Transportation Bldg., Washington 6, D. C. for your copy of the booklet TRANSPORTATION — A POLICY FOR THE FUTURE.

ASSOCIATION OF **AMERICAN RAILROADS** WASHINGTON 6, D. C.

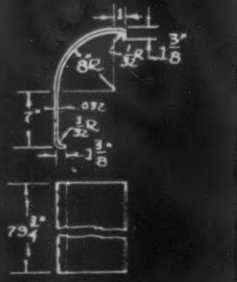
IN PARTNERSHIP WITH ALL AMERICA

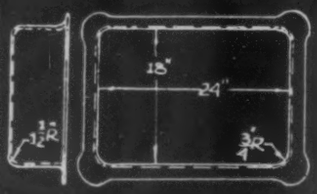
Light Metals give your product new selling features!

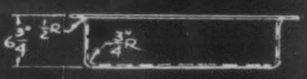
COLGATE

DESIGNING • ENGINEERING • FABRICATING • ASSEMBLING

will get it to market *faster, better, economically!*





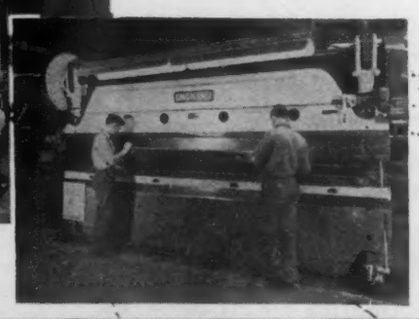


If the manufacture of your new or improved product has been interrupted by factors beyond your control, the urgency of getting it to market ahead of competition is of paramount importance. To secure immediate parts-production assistance and other benefits of sub-contracting service you will be interested in the comprehensive scope of COLGATE'S "Engineered Service."

This unique and unexcelled service offers immediate design, engineering, and production conferences that help develop your new product ideas or improve old products by substituting Aluminum, Magnesium, or Stainless Steel for other materials. Our cooperative collaboration of minds will save you time and money *before* designs have been started, also after blueprints have been prepared. COLGATE'S sales-minded designers and engineers will apply to your product these sales-building features of Aluminum, Magnesium, Stainless Steel—*lighter weight, added beauty, increased strength and durability, improved product performance, reduced shipping weight.*

COLGATE'S complete and varied tooling and production facilities can be your "branch factory" — providing ample space, supplying specialized skills and know-how, planning shortcuts for fast, economical fabrication and assembling of parts to precision tolerances, and in addition offer modern straight-line techniques that replace slower and costlier methods. And, COLGATE can be depended upon to meet delivery dates.

As the first step towards producing your product better and economically, and getting it to market faster call on COLGATE *now!* Learn how "Engineered Service" helps solve your production problems and gives your product the sales creating features of the light metals. For immediate action wire or write, no obligation, complete confidence assured.



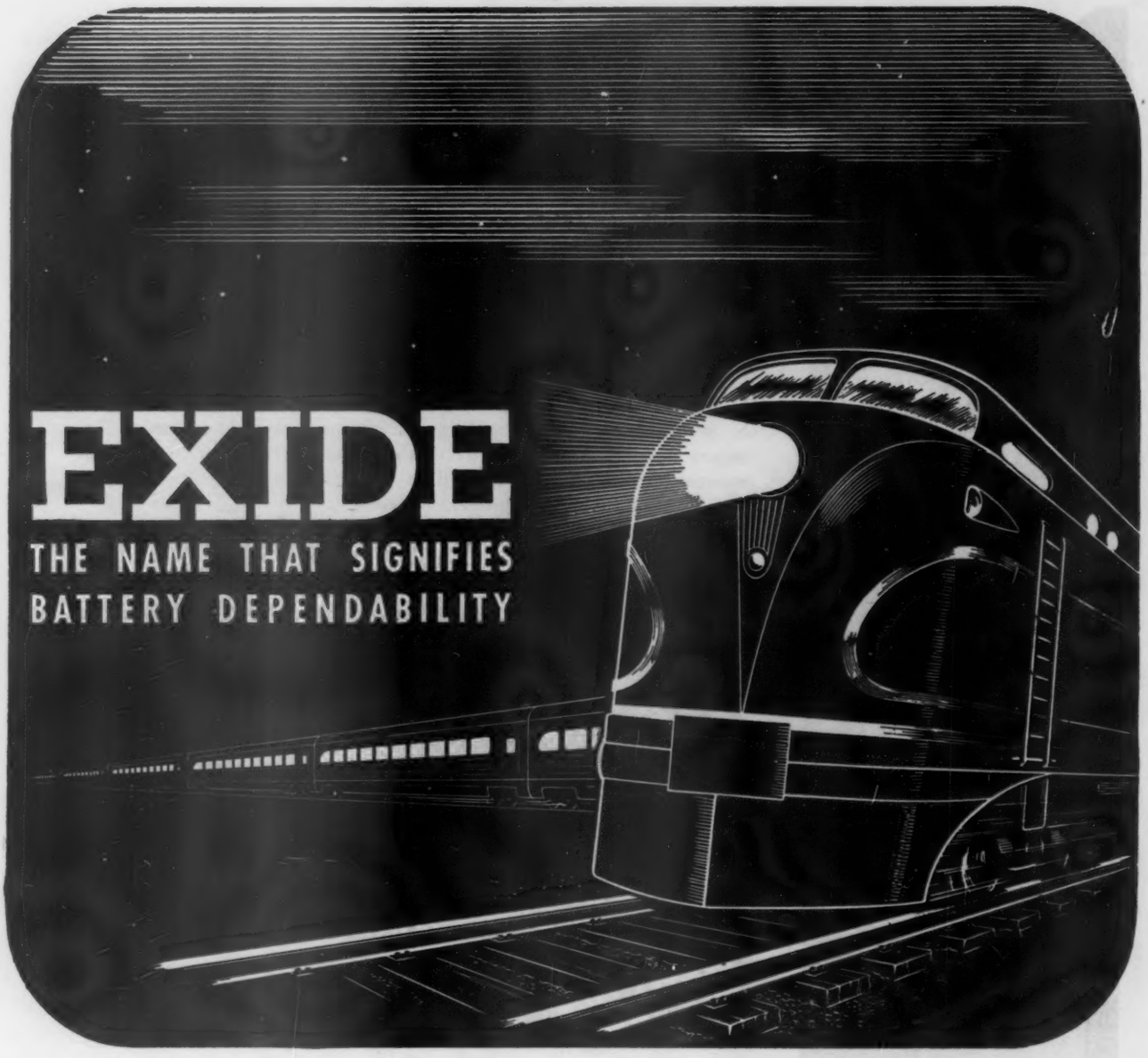
STAMPING • FORMING • DRAWING • WELDING
FINISHING • ASSEMBLING

COLGATE'S complete and centralized facilities include Hydraulic presses ranging from 10 to 750 ton capacity, other mechanical presses from 2½ to 200 ton capacity.

COLGATE *Aircraft Corporation*

AMITYVILLE, LONG ISLAND . . . NEW YORK

LIGHT METALS PRODUCTS



EXIDE dependability is well known in practically every railway engineering office in the land. Trainmen, too, recognize it, for they see Exide performance in brighter lights and uniform air-conditioning. Freight agents and store keepers see it in day-long action in electric industrial trucks. Locomotive engineers see evidence of its power in the cranking of their big Diesel-electrics . . . and in the clear signal lights that guide them on their way.

Since 1891, Exides have been serving America's railroads . . . not only with dependability, but also with long-life, ease of maintenance, economy. And Exides will be serving in the fine, modern equipment that soon will be speeding over the high iron.

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • Exide Batteries of Canada, Limited, Toronto

SMOOTH GOING
Even the roughest hauls mean smooth going
when your freight cars roll on
BARBER STABILIZED TRUCKS
They - control harmonic bounce
- prevent broken springs
- eliminate bolster and
column wear

BARBER SPRING-PLANKLESS STABILIZED TRUCKS ARE BEING USED IN ALL TYPES OF FREIGHT SERVICE

Over 110,000 car sets of Barber Stabilized Trucks are in use on 58 different railroads and private car lines

STANDARD CAR TRUCK COMPANY
332 SOUTH MICHIGAN AVENUE CHICAGO 4, ILLINOIS

Let's Have Dinner at 19:30

says

R. R. Rider

(Number thirteen of a series)

Everybody has some pet reform in the back of his head, and he'd like to be a dictator just long enough to make it a law. Mine is a modest one. I don't want to change the world, or make everyone rich, with a fat pension at fifty. No, my idea has nothing to do with economics or social relations, and it won't make anyone call me a Right or a Left. I just want to make it a little simpler to read a timetable.

Not that I have much trouble now; at least I don't have to yell for help to figure a timetable out. But lots of people hesitate a little when they want to know if a train gets some place in the A.M. or P.M. You *do* have to decide whether the type is light or heavy. But I'll fix that when I take the government over. My first edict from behind my big new desk will be: adopt the military 24-hour time system. Then I'll resign.

Take this timetable, for instance. Here's a train that gets to Pittsburgh at 2:35. Sure, 2:35 P.M.; the type is blacker than A.M. figures, but I'll bet it confuses some people. Now if the timetable said 14:35 you couldn't miss. Maybe that sounds a little strange to you at first, but it wouldn't take long to get used to it; millions of people in the services *did* get used to it during the war.

Matter of fact, maybe I won't have to be a dictator after all. The railroads could put this idea across themselves, as they did with standard time in the early 80's. They had a convention and did away with about 60 local times, and local communities soon fell in line. I've heard that in those days, two railroads using the same station in a town often ran on different times, neither of which was the same as local time. Imagine catching a train in those days!

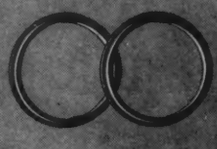
I've only thought of the convenience this system would be to the public, but it seems to me that it would simplify things for the railroads, too. Anyway, it's something for them to think about.

Edgewater

Serving America's Railroads

RING SPRING DRAFT GEARS

ROLLED STEEL WHEELS



LOCOMOTIVE TIRES

EDGEWATER STEEL COMPANY · PITTSBURGH, PA.

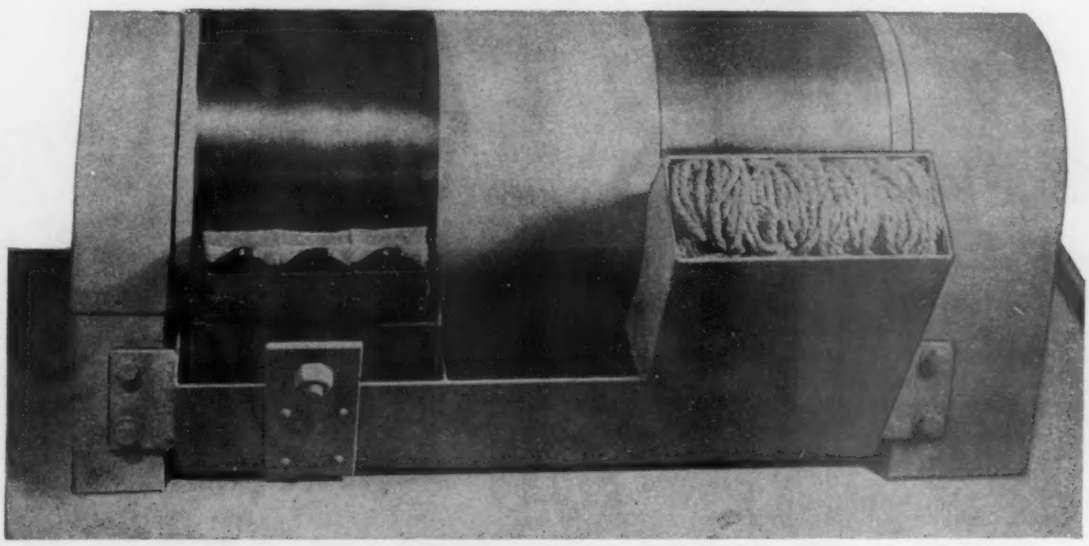
Atlanta — Baltimore — Boston — Chicago — Cleveland — Kansas City — Louisville — New York
Philadelphia — St. Louis — St. Paul — San Francisco — Seattle — Washington, D. C.

See the difference!

4 _____ TO _____ 1

Full Oil Feed From Felpax Lubricator ⬇

Starved Oil Feed From 98% Wool Yarn ⬇



The illustration shows a section of a Diesel Elecric traction motor suspension journal.

One end is lubricated by a patented FELPAX lubricator.

The other end is lubricated by first quality 98% wool yarn.

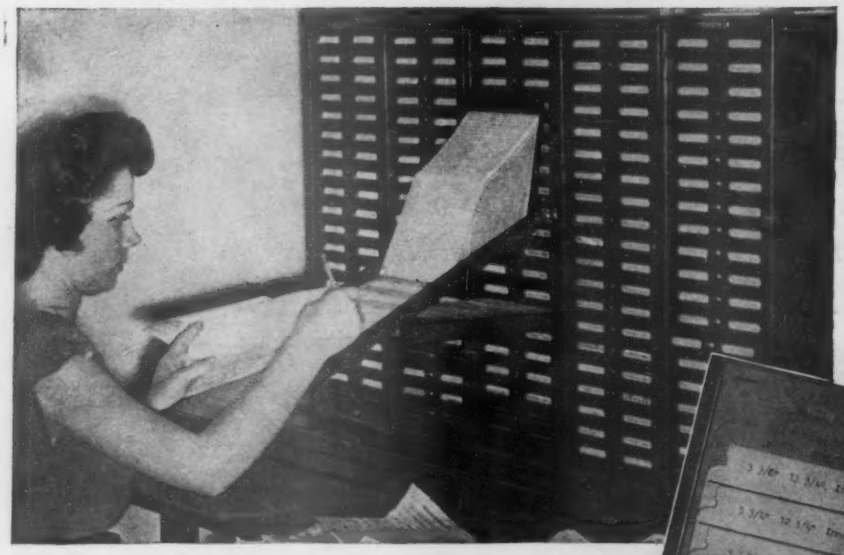
The ratio of oil fed to the journal is 4 to 1 in favor of the FELPAX lubricator! Need we say more about bearing wear and the resultant wheel changes-outs when FELPAX feeds 4 times as much oil to the vital bearings as compared to wool yarn.

Displayed at Railway Suppliers Convention . . .
Hotel Sherman . . Chicago September 4-5-6, 1946

FOR FULL PARTICULARS SEE YOUR LOCOMOTIVE BUILDER, or write to

MILLER-FELPAX COMPANY
WINONA, MINNESOTA

An Important New Improvement In Railroad Pricing Records



Occupying only a few square feet of floor space, this five-cabinet pricing record installation at the Gulf, Mobile and Ohio Railroad Company provides for the listing of up to 35,000 individual items.

No time or space wasted with a record like this! Taking the top card as an example, you see that the Kardex visible margin makes it easy to locate "Coil Springs for Cars". In the same pocket, various types and sizes are listed on interlocking Chaindex cards. Date, Vendor and Price are posted opposite "D", "V" and "P" respectively.

Streamlined System used by

GULF, MOBILE and OHIO
Affords Speed
Compactness
Expandability!

Protects Records from Soiling

The new, quick-reference pricing record used by the Gulf, Mobile and Ohio Railroad is another positive indication of the industry's trend toward modernization—in office procedures as well as rolling stock. Completely streamlined, in order to cope with today's heavier-than-ever work load, it offers advantages that are revolutionary in this type of record.

For instance, there aren't any bulky, dog-eared loose leaf sheets to slow down reference and posting. G, M and O have their entire pricing record housed neatly and compactly — and protected from soilage — in Kardex pockets with visible margins.

You can find any item in a matter of seconds without leafing through a lot of other records.

Expandable and No Re-Writing—When new items are added, the Kardex pockets are easily rearranged to maintain proper sequence.

Another advantage is that minor items representing size or other variations are listed on small Chaindex cards hooked together — as many as seven in each Kardex pocket. New listings can be added without disturbing adjacent pockets or even recopying the main classification name.

What's more, the six column setup permits as many as five price changes on the original card. Further changes, if any, can be posted on inserts attached to the same card — a new and exclusive feature.

Systems Tailored to Fit Your Needs—Write today or phone the nearest Remington Rand office for facts on new, improved pricing record systems, adapted to your exact requirements. Our systems technicians can install the new system and instruct your personnel without interrupting your daily operations.

SYSTEMS DIVISION **Remington Rand** *315 FOURTH AVE NEW YORK 10, N Y*

INSTANT PERSONAL VOICE INSTRUCTION

TO THE YARD CREW IS POSSIBLE WITH . . .

Telespatch Dispatching Systems

With "TELESPATCH" no yard employee is farther away from the dispatcher than his nearest speaker can call. This modern voice-to-voice contact gives the man in the tower quick, instant control of ever changing yard situations.

"TELESPATCH" provides dependable supervision through a central master control unit which gives instant two-way contact through intercommunicating speakers . . . and is able to widen its range through a grouping of long-range paging speakers. Plenty of power is provided to meet high noise level conditions.

"TELESPATCH" embodies basic principles which have made Webster Electric "Teletalk" Amplified Intercommunication systems widely accepted in every type of business for many years. It brings to railroads the personal voice supervision to speed up loading, unloading and handling of freight, making up of trains and control of switching operations in classification yards and train sheds.

"Telespatch" systems can be provided in various capacities to meet your specific needs. For complete details, write Webster Electric Company, Racine, Wisconsin.

Licensed under U. S. Patents of Western Electric Company, Incorporated, and American Telephone and Telegraph Company

WEBSTER RACINE **ELECTRIC** WISCONSIN

Established 1909

Export Dept. 13 E. 40th Street, New York (16), N. Y. Cable Address "ARLAB" New York City

"Where Quality Is a Responsibility and Fair Dealing an Obligation"

Yes, in the Process Industries a bottleneck like the big one above is designed that way for a purpose, and PSF provided the casting experience that made it possible. The "bottle" illustrated is a 22-foot-long container of 1½" metal thickness, weighing more than 24,000 pounds. It was not only cast, machined and assembled 100% by PSF, but completely stress-relieved as well to assure uniform grain structure and strength. • Investigate the ability of steel castings to solve problems you may have—and check on PSF's ability and facilities for handling *any* steel casting job!

W&D 9881

48 YEARS OF STEEL CASTING KNOWLEDGE

Pittsburgh

STEEL FOUNDRY CORPORATION

Glassport, Pa. · Fort Pitt Steel Casting Div., McKeesport, Pa. · Pittsburgh Spring and Steel Co. Div., Pittsburgh, Pa.

Sales Offices: NEW YORK • PHILADELPHIA • CHICAGO • CLEVELAND • CINCINNATI • AKRON • WASHINGTON

WINDOWS OF CONSTANT, BRILLIANT VISIBILITY

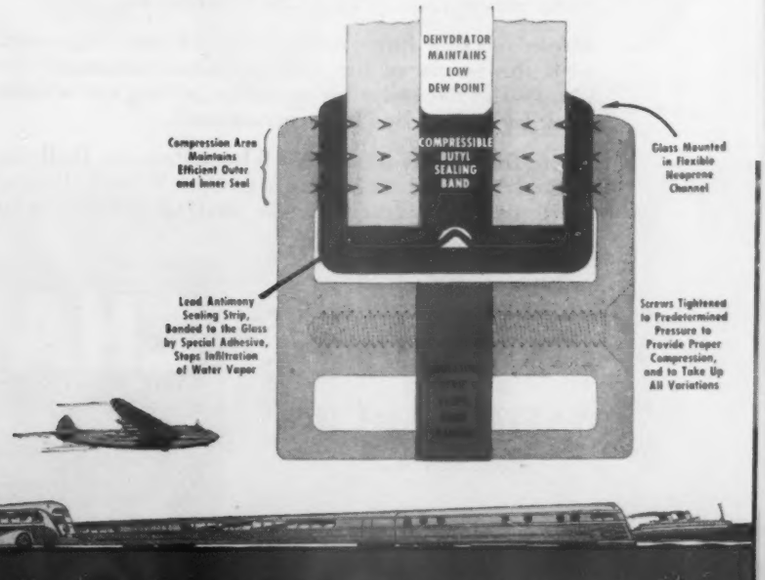
Vapor-Tight
DOUBLE SEALED
SASH

BY EDWARDS

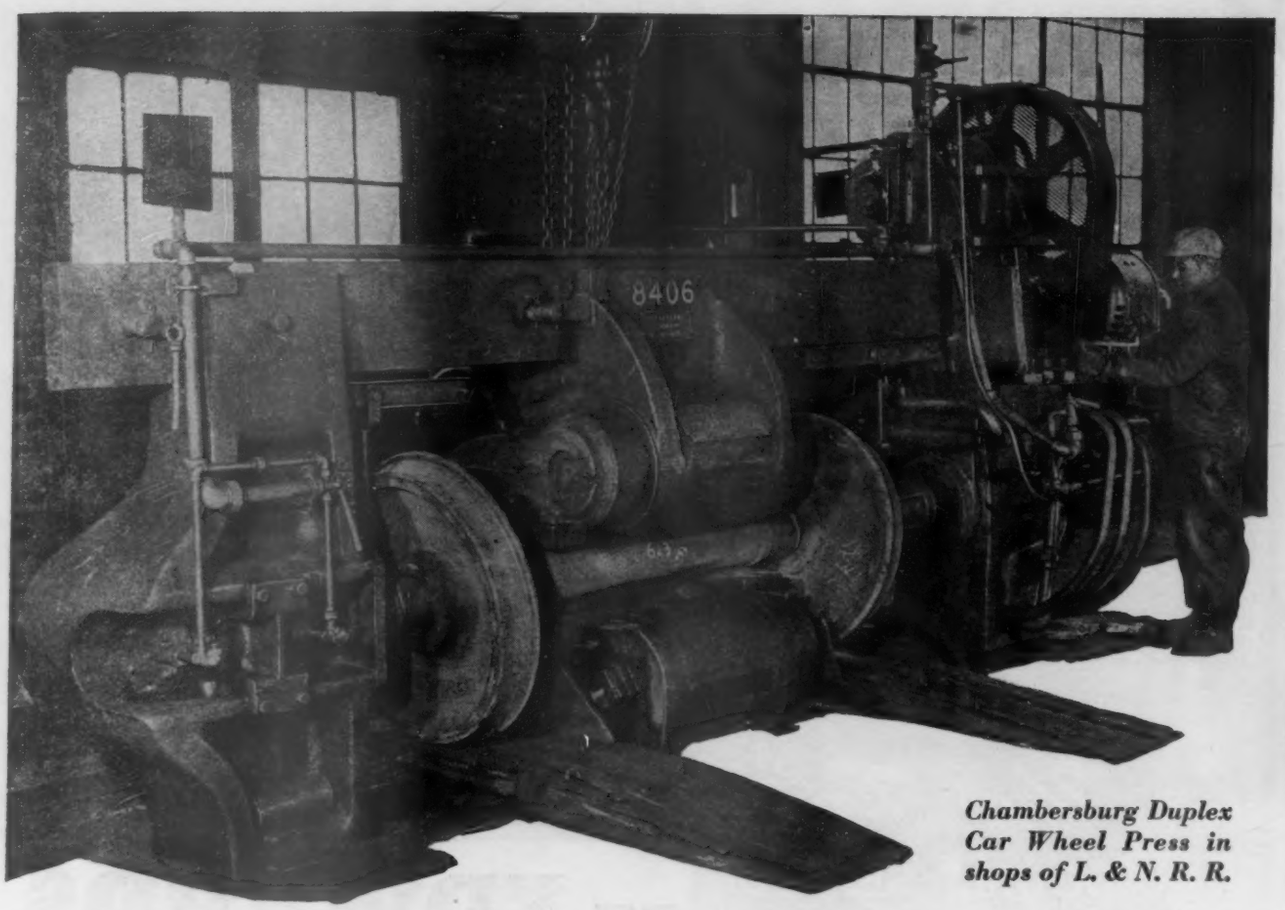
New Vapor-Sealed Dehydrated Sash by Edwards for air conditioned cars in high speed, streamlined trains, is the last word in double glazed sash design. To passengers they bring windows of constant, crystal-clear visibility, regardless of weather, climate or altitude . . . to operators, units that are built to last for the life of the car with the absolute minimum of service.

Before preparing sash specifications for new or renovated equipment, get the facts on the new Edwards Vapor-Sealed Unit. It's the best designed, most ruggedly built, most efficient sash ever offered to the railroads of America—and it's competitively priced!

The O. M. Edwards Company, Inc., Syracuse, N. Y.


DEHYDRATOR MAINTAINS LOW DEW POINT
Compression Area Maintains Efficient Outer and Inner Seal
COMPRESSIBLE BUTYL SEALING BAND
Glass Mounted in Flexible Neoprene Channel
Lead Antimony Sealing Strip, Bonded to the Glass by Special Adhesive, Stops Infiltration of Water Vapor
Screws Tightened to Predetermined Pressure to Provide Proper Compression, and to Take Up All Variations

SASH FOR EVERY TYPE OF TRANSPORTATION—ON LAND, ON THE SEAS, IN THE AIR



Chambersburg Duplex Car Wheel Press in shops of L. & N. R. R.

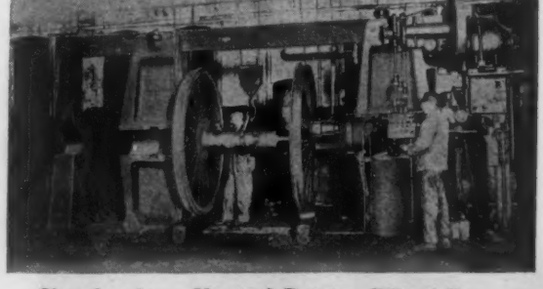
40 Seconds Floor-to-Floor Car Wheel Demounting Time

Seventy-two Seconds per Wheel for Mounting

Chambersburg Wheel Presses have established records in railroad shops all over the country for the speed with which they permit the rapid mounting or demounting of wheels. On the car wheel presses, records have been made for demounting wheels as low as 40 seconds per wheel floor-to-floor —mounting time as rapid as 72 seconds.

These presses have been designed and improved with the needs of the railroad shop constantly in mind—the necessity for speed in getting car wheels back in service has been paramount.

Write for details of today's Wheel Presses. Bulletin 202 describes the Duplex Car Wheel Press. Bulletin 212-1 describes the Driving Wheel Press.



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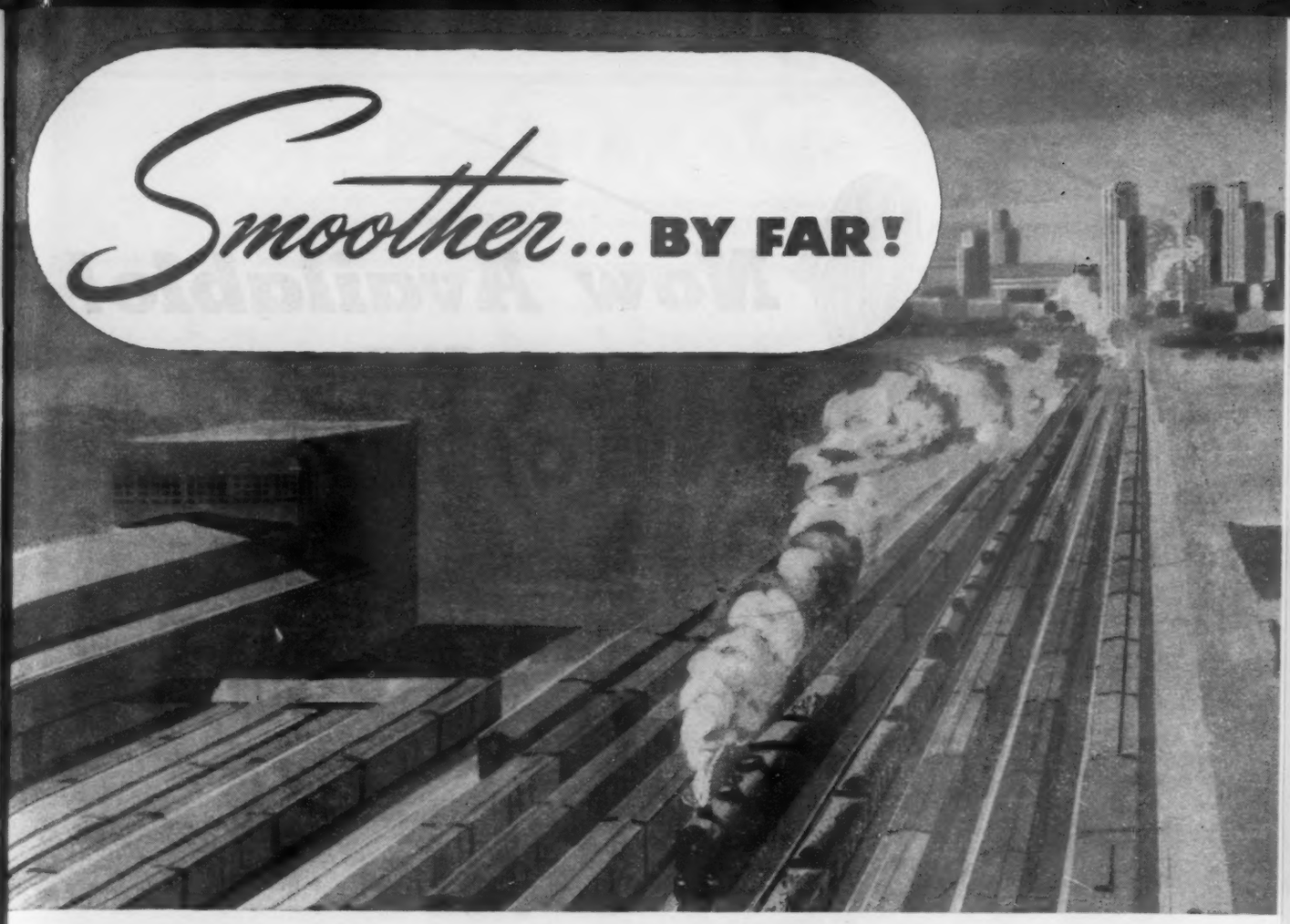

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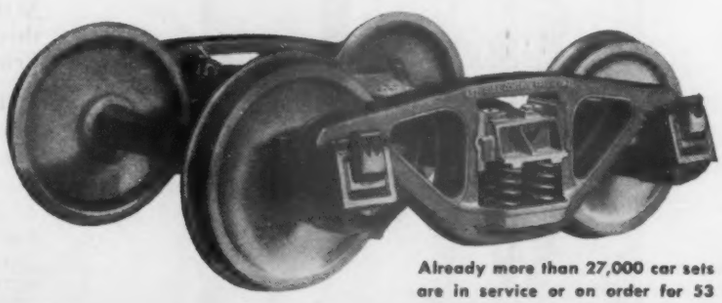

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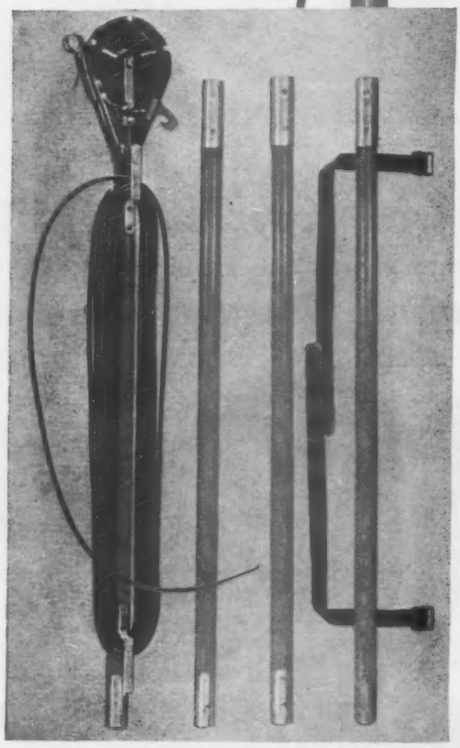

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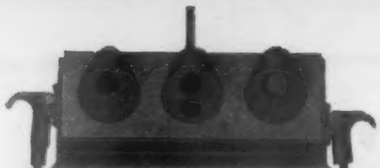

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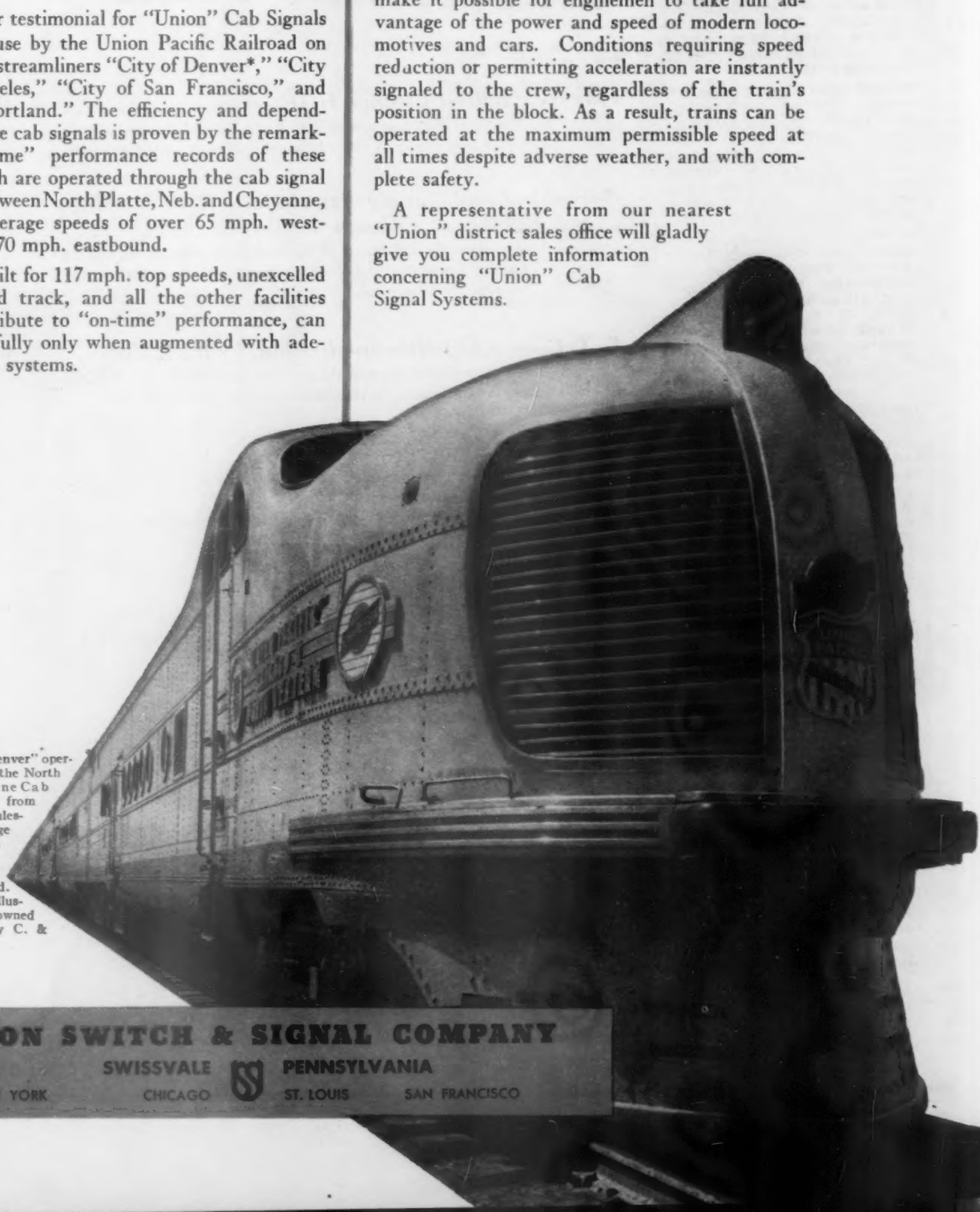

*The "City of Denver" operates over part of the North Platte-Cheyenne Cab Signal territory, from North Platte to Julesburg, at an average speed of 70.6 mph. westbound and 77.7 mph. eastbound. The locomotive illustrated is jointly owned and operated by C. & N.W.—U.P.

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The Week at a Glance

"PRODUCTIVITY" OF LABOR: Many wage increases have been awarded to employees of the railroads and other industry in the past two decades on the alleged contention that labor's "productivity" had increased. The figures unquestionably showed greater output per employee and per hour, but the increase was due more to improved machinery, additional investment, better managerial performance, and external factors (e. g., the war) than to harder or more efficient work by employees. Be that as it may—the figures now show a *decline* in productivity per employee and per hour of labor, and the leading editorial herein raises the question, if the "productivity" argument is sound, why wages should not now be reduced.

●

WHY "PRODUCTIVITY" FELL: Of course, such "productivity" evidence does not mean anything unless *other conditions are equal* (machinery, capital, managerial skill, demand for the industry's output); and the decline in "productivity" of railroad employees from the war-time peak is caused for the most part, probably, by the same factors which have reduced the "productivity" per freight car. People's energy does vary, of course, but the point is that the figures usually cited to testify to labor's "productivity" do not give any conclusive evidence on this point. Our editorial concludes that prices of all goods and services should be determined by supply and demand factors—and, in regulated industries, by letting their rates and wages conform to trends in the unregulated part of the economy. This is the only way to keep the economy in equilibrium, with maximum production and employment—and hence the highest *real* wages (i. e., the goods that incomes will buy) for everybody who works for a living.

●

IRON HORSE NEEDS HAY: E. E. Norris told a meeting of North Carolina newspaper men this week that the iron horse is suffering for lack of hay, take-home hay, that is. The Southern's chief executive reminded the scribes of the indispensability of railroad service—and the impossibility of providing that service adequately unless it is made financially attractive to investors. The railroads have no rich uncle who builds their fixed plant for them as he does for other members of the transportation family. Mr. Norris cited earnings figures for the first seven months to convey some notion of the degree of enticement which the carriers can now wield in attracting the dollars of wary investors.

●

MECHANICAL PERSONNEL: Under the chairmanship of the New York Central's F. K. Mitchell, the committee on personnel of the Locomotive Maintenance Officers Association prepared a report on their assignment which is certainly no white-wash of the *status quo*. An abstract of this report is published in our account, elsewhere in these pages, of the meeting of the Coordinated Mechanical Associations in Chicago last week, where this unusual piece of committee work was presented. A detailed account of the proceedings of this session will be published in the October issue of "Railway Mechanical Engineer," as of special interest to mechanical department officers—but what is revealed in the briefer record in our own pages should prove interesting and helpful to railroaders in all departments.

●

"HAPHAZARD, INADEQUATE": These are the adjectives used by Chairman Mitchell's committee to characterize the training systems in force on the railroads before World War II. The training instituted during the war was a "stop-gap" device, but it showed the need for "some parallel type of training to be conducted continuously." The report finds further that the railroads have been careless in their selection of employees for training; and that they mistakenly conclude, because men are scarce, that the present is not an auspicious time for planning an intelligent personnel program.

●

MAKING SUPERVISORS: Too often the railroads' method of selecting supervisors is to pick men for promotion for unsound reasons—and to give them no more instruction than to point to the job and say: "There it is; go to it." If the fellow manages to succeed despite such an inauspicious introduction to his important duties, the management deserves no credit for his success because no thanks are due to its forethought that the outcome is a happy one. So says the Mitchell committee. "Faithful are the wounds of a friend"—the proverb goes something like that; and it means that when people who are friendly to the industry and who know what they are talking about find such fault as this committee has done, it would be foolish indeed either to resent what they have said or to fail to act decisively to correct the mistakes they have uncovered.

●

MAMMOTH BALLAST CLEANER: The Santa Fe has got a regular Leviathan of a ballast cleaning machine in operation, which picks up all shoulder ballast and that between tracks in double-track territory; shakes all the dirt out of it; and then puts the clean ballast back where it came from—all at the rate of 5½ miles per day, including time out to clear revenue trains. An article in this issue describes this time-saving apparatus, developed by the company's own engineering staff—and tells how its operation will be scheduled.

●

JOHN L. IS TOUGH: Mr. Truman delayed almost two weeks in naming a "fact-finding" board to weigh the merits of the refusal of the Miners' Union (representing Long Island trainmen) to accept the 18½-cents wage increase—which, when standard unions refused it, caused Mr. Truman to denounce them over the radio and to threaten them with all the country's military might. Such delay made it look as if the fact-finders couldn't possibly handle the case within the 30-day limit, but the job of adjudication has been simplified by the refusal of the U. M. W. to put in an affirmative case to the board.

FACT-FINDING A "FARCE": The attitude of the U. M. W. in this case is that it isn't going to waste its time telling any government tribunal, or any other disinterested agency, what if any reason it may have for its huge wage-increase and feather-bed demands. The American people ought, obviously, to know by now that, practically speaking, the mere fact that the U. M. W. demands it is all the reason that anybody ought to dare to ask. The procedure prescribed by law for the settlement of railway labor disputes is characterized by the U. M. W.'s lawyer as a "farce"—adding that the union wouldn't have shown up before the fact-finders at all, except to "avoid insulting the President of the United States."

●

CHAOS IN LABOR RELATIONS: The law, which practically forces industrial employees into unions and ties the hands of an employer in fighting a strike, however unjustified—and the lack of enforcement of laws protecting persons and property from wanton injury—have made practically inevitable the labor situation in which the country finds itself today. Most people lay the blame on unionists, who are acting only as external forces are compelling them to act—instead of blaming the politicians who have set these chaotic forces in motion; and instead of blaming themselves for their folly in entrusting their country's fate to such politicians.

●

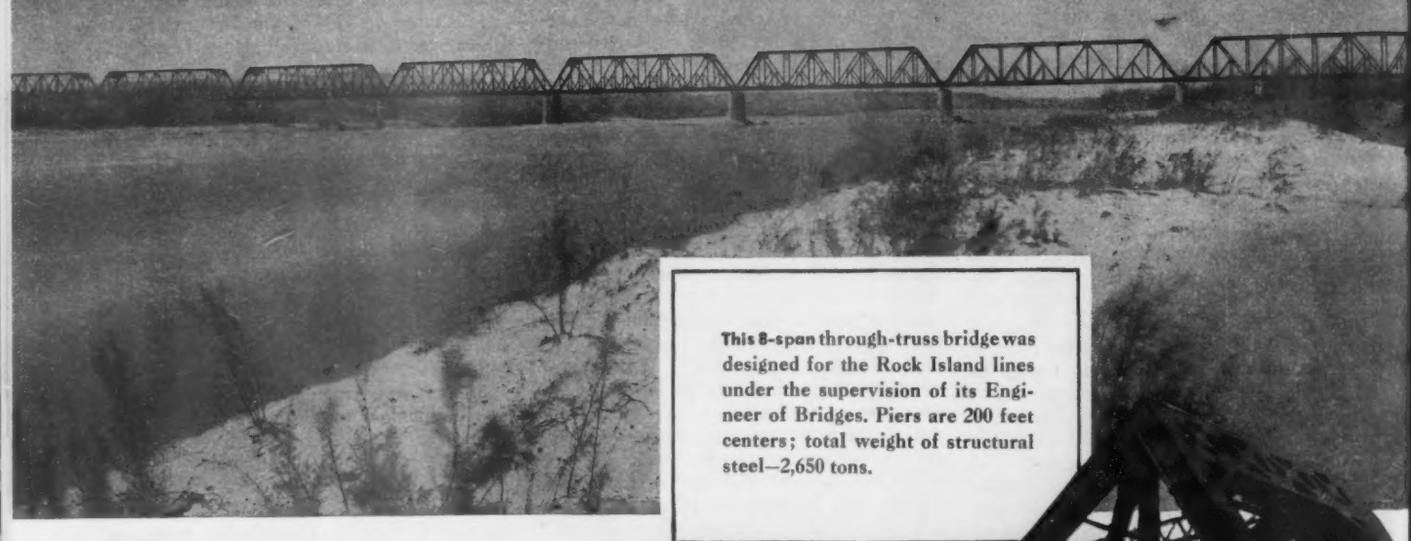
FIGURES ON A DEBACLE: The Interstate Commerce Commission continues unmoved by the financial plight of the carriers, entrusted by Congress to its "fostering guardianship"—but, to the credit of the Commission's statisticians, *they* are not trying to keep quiet the figures on the extent to which carrier earnings have skidded. In their "Monthly Comment," reviewed in the news pages herein, these statisticians point out that railroad net earnings, such as they were, in the twelve months ended with July were largely attributable to excess profits tax credits, and not to the transportation business. The statisticians note also that the railroads' contribution to national income was a little more than 3 per cent in 1945 compared to almost 7 per cent in 1920. Some invention, this bureaucratic price fixing!

●

SUPERVISORS AND PUBLIC: President William Vollmer of the Texas & Pacific made a rousing speech to the Coordinated Mechanical Associations at their meeting in Chicago last week—giving them a quick survey of the vital points in the economic position of the railroads; then urging these supervisory officers, as railroad representatives and leading citizens in their communities, to "speak to every citizen and group of citizens everywhere at every opportunity and tell them and sell them the facts as I have related them to you today. . . . We have not even got a good start toward doing a first class public relations job." Mr. Vollmer's arresting and instructive address is included in our report in this issue of the mechanical officers' meeting.

New Red River Bridge

CARRIES FASTER, HEAVIER TRAFFIC



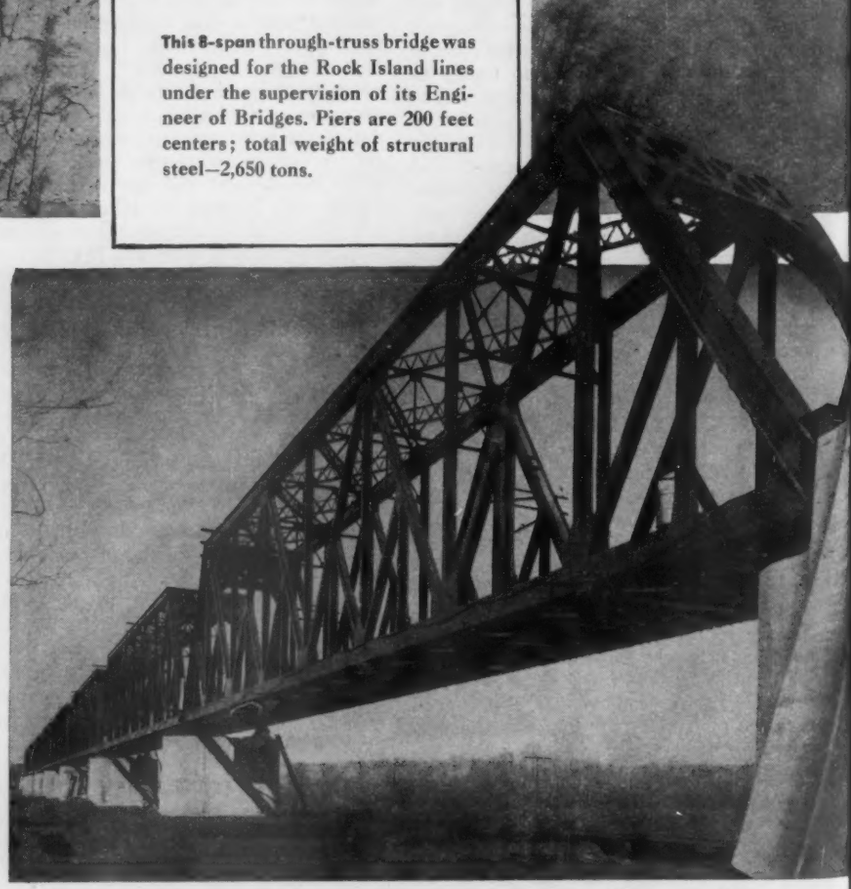
This 8-span through-truss bridge was designed for the Rock Island lines under the supervision of its Engineer of Bridges. Piers are 200 feet centers; total weight of structural steel—2,650 tons.

THIS new bridge over the Red River near Terral, Oklahoma, replaces an old crossing too light for today's heavy traffic on Rock Island lines.

American Bridge Company furnished the 8 new, heavier trusses, which are designed for modern E-72 loading under A.R.E.A. specifications.

Five of the trusses were furnished in 1945 and joined temporarily to three of the old pin-connected trusses. Now American Bridge has erected three new trusses and made necessary pier and abutment alterations to complete this modern bridge. The job was furnished and erected on schedule under unusually dense traffic conditions.

The Red River Bridge is another example of modern planning for better railroading. It is also a proof that it will pay you—whatever your bridge problem—to call on American Bridge Company's unexcelled facilities, engineering skill, and fabrication and erection experience.



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RAILWAY AGE

Declining "Productivity" of Railway Labor

For many years, managements of the railroads and other industry had demands made upon them by their organized employees for wage increases, based upon an alleged "increased productivity" by labor. Statistics were presented showing steadily increasing output of physical units of product per employee and per hour of labor. The conclusion from such figures, expressed or implied, was that the "efficiency" of the individual employee had, somehow, increased; and that, as compensation for the greater skill and exertion imputed to him, he deserved to have an increase in his hourly rate of wages. Actually, of course, such figures proved absolutely nothing as to the productive virtues of employees—instead they usually resulted from the provision of additional capital in the form of new and improved tools of production; or from greater managerial experience and skill; or from fortuitous external circumstances (such as, for instance, a war which assured a large and unrelenting demand for the industry's product).

It is a poor rule, however, which does not work both ways. If, over the years, "increased productivity" of labor has justified all the wage increases which have been granted under this pretext, then the post-war decline in productivity per unit of labor calls for a proportionate decrease in hourly wages. On the railroads, the year of greatest total war-time traffic was 1944 and the heaviest month in freight traffic in that year was August, when movement approximated 64.5 billion revenue ton-miles. In the same month revenue passenger-miles totaled 8.6 billion. Thus total railway traffic for the month was approximately 81.7 billion "traffic units" (i. e., revenue ton-miles plus twice the total of revenue passenger-miles). By a similar computation, "traffic units" in March, 1946, are found to have been 64.3 billion.

"Productivity" Declines 17 Per Cent

There were 1,449,000 railroad employees in August, 1944 (mid-month average), and 1,368,000 in March, 1946. Total hours of labor paid for by the railroads (including overtime at penalty rates and an estimate at 8 hours per day of the hours worked by employees paid on a daily basis) were 352.9 million in August, 1944, and 311.2 million in March, 1946. Thus in August, 1944, the railroads' production of "traffic units" averaged approximately 56,400 per employee, but only 47,000 per employee in March, 1946—a decline of almost 17 per cent. The production of "traffic units" per employee-hour paid for by the railroads was 231 in August, 1944, and 207 in March, 1946—a decline of more than 10 per cent. March, 1946, is the latest month for which complete statistics on employment are available. More recent months will doubtless show an even more startling decline in the "productivity" per employee.

"Heads I Win . . . ."

If this "productivity" argument had had any justification as a guide to wage determination in all the years when it was used for that purpose, then it should also have been applied last spring to effect a reduction in hourly wages, instead of the increase of 18½ cents which was actually granted to railway employees, at the insistence of the political authorities. Organized labor follows a policy of "heads I win, tails you lose" on these questions—a course which has been very successful in view of the general public confusion on most economic matters, and the unwillingness of management to hazard an effort at popular education on controversial issues.

If unions, management, and the political authorities were really concerned with the country's long-run economic welfare, none of them would try to justify higher and higher *monetary* wages on all occasions, under whatever pretext came easiest. Instead, they would try to encourage the determination of wages, and all other prices, by the forces of supply and demand. That is, they would establish wages at rates necessary to attract the needed supply of labor, but not so high that employers would have to turn people away who were looking for jobs. Similarly, they would pay "capital" a "wage" (that is, interest and profits) just sufficient to attract the funds required for desirable improvements and additions. To pay "wages" to "capital" higher than such a rate would be a reprehensible "monopolistic" practice; to pay less would curtail the supply of improvements required to produce more and better goods. If supply and demand—rather than such disingenuous or naive arguments as "labor's productivity" were the determinant of wages, then the country would at all times have the highest possible production—and the same forces of supply and demand would so control prices that *real wages* (that is, what one's income will purchase) would at all times be at the maximum.

The point is that organized labor does not have to rely on unsound economic arguments to advance the

interests of its members. For example, the wage increase granted to railroad employees last spring was in at least some degree justified by supply and demand conditions in the market for labor, especially in the lower-skilled occupations. Unless the railroads pay wages commensurate with those of other industry, they cannot secure an adequate or competent supply of labor. Let those who will agree with this observation as it applies to labor also take note, however, that it applies to "capital" as well. The railroads were forced, both by supply and demand factors and by their respect for the power of the political authorities, to grant a substantial increase in wages. At the same time they ceased to earn any "wages" for equity "capital" whatever. That is, because of the refusal of the Interstate Commerce Commission to permit them to "follow the market" in charging for their service as they have been forced to do in purchasing supplies and labor, the railroads earned a return of less than nothing for their equity capital in the first half of 1946. Yet a continuous supply of new capital is just as necessary for a healthy railroad industry as is a constant inflow of labor and managerial talent.

Duty of Regulators

Competent economists all agree that the function of government regulation — in an industry where "natural" monopoly does not permit the forces of competition to serve as an effective regulator—is to impose as nearly as possible within the regulated industry the conditions which are established elsewhere by competition.

This means that, in a regulated industry, if the regulators are on the job and are competent, the trends of wages, of interest, of profits, and of prices should parallel those of unregulated industry. The Interstate Commerce Commission, by its inexcusable delay in permitting the railroads to price their service in accordance with the realities of the present-day market, betrays its acute need for an infusion of intellectual vigor and courageous concern for the welfare of the nation as a whole—a consideration which ought to be controlling when the President comes to name new members to that tribunal.

It Didn't Just Happen

As this issue goes to press, final preparations are being made for what promise to be two of the most successful and constructive conventions ever held by railroad supervisory officers in the track and structures departments—namely, the concurrent annual conventions of the Roadmasters' and Maintenance of Way Association and the American Railway Bridge and Building Association, at the Stevens Hotel, Chicago, on September 17-19. Assurance that these meetings will be outstandingly successful derives from three factors—(1) the flood of advance reservations for room accommodations that has descended on the Stevens and other Chicago hotels; (2) the pertinent and timely nature of the addresses and technical reports making up the programs; and (3) the record exhibit of manufacturers' products that will be on display while the meetings are in progress.

Vitality Demonstrated

The promise of success for these meetings has reassuring implications for the railroads and their managements. It reaffirms the inherent vitality of the two groups of supervisory officers which has brought them through the vicissitudes of depressions and wars with apparently undiminished vigor, spurring them to continue the work that has had such a profound and constructive influence in shaping the railroad's maintenance practices. Continuance of this work was never of greater importance than at the present time when intensified competition, increasing costs, and the need for higher standards of construction and maintenance have created a multitude of new and difficult problems for the supervisory forces in the track and structures departments.

What assurance is there that the energies of the two associations will be equal to the task of keeping them functioning effectively in dealing with the problems of the present and the future? It is important, first, to recognize that such vigor didn't just happen—that it is not something that can be taken for granted. Actually, the driving force in both associations—the force that has kept them functioning through thick and thin—has nearly always stemmed from the unstinting efforts of a relatively small segment of the membership—a segment composed of men who have recognized the value to the railroads of the work done and the need for perpetuating it.

One thing needed to assure the continued vitality of the associations is the active support and co-operation of railway managements. Generally speaking, the attitude heretofore of higher railway officers towards these associations has been one of indifference—which in many cases can be traced to a lack of appreciation of the splendid work done by the two groups in the interest of the railroads. A slight shift in this attitude to one of active encouragement for those supervisory officers who wish to participate in the work of the associations would cost management little or nothing, and would bring results of inestimable value.

More Work Needed

Another way in which the vigor of the two groups can be enhanced and perpetuated is for the individual members to participate more actively in their affairs. It is important, of course, for members to pay their dues and attend the meetings, but if an association is to function effectively in the interest of its members and their employers, an enormous amount of work must be done—work that should be shared by the members and spread among them to the greatest possible extent.

In other words, while it is reassuring to note that the two associations are continuing to function as effectively as ever, it is taking too much for granted to assume that they will continue to carry on in this manner without the encouragement of railroad managements and the full support of all their members.

Co-ordinated Mechanical Associations Rejuvenated

A new lease of life was literally breathed into the Co-ordinated Mechanical Associations by their notable success in re-instituting joint annual meetings on September 4 to 6, inclusive, at Chicago, after a lapse of five years since the last annual conventions. The support which many individual railroads rendered in permitting representative mechanical officers and supervisors to attend was most encouraging; and the same may be said for the official recognition by the A. A. R. Mechanical Division which sent representatives to the meetings and approved all committee subjects, in advance of preparation of the reports, to avoid possible duplication of effort between the respective associations and the work of the A. A. R. itself.

With this carefully prepared ground-work for the convention, the attendance was gratifying, the total registration of railway men, supply men and guests exceeding 2,350 for the three-day meeting of the four associations, which include the Railway Fuel and Traveling Engineers' Association; Car Department Officers' Association; Locomotive Maintenance Officers' Association; and the Master Boiler Makers' Association.

Full justification for the time and expense of holding this convention was realized in the early joint sessions when all four associations met in the same room to listen to two prominent railway officers who delivered such pertinent, comprehensive and challenging addresses that the suggestions they advanced seem bound to take root and produce tangible results in improved public relations and more efficient railroading in the months to come. W. G. Vollmer, president of the Texas & Pacific, presented in easily usable form the basic facts regarding railway accomplishments in relation to the national economy and pointed out how railway service is being jeopardized by unfair subsidized competition by air, water and highway. He urged every member of the associations to familiarize himself with the facts and, in season and out, in personal conversation and at public meetings, to miss no opportunity to present these facts to the public.

At another largely attended meeting, F. K. Mitchell, general superintendent of motive power and rolling stock, New York Central, presented a detailed analysis of the problem which confronts railroads in adequately selecting, training and promoting not only apprentices and mechanics in all crafts, but supervisors, including those who show aptitude for advancement to higher executive positions. Space is not available here even to mention individual committee reports of the four associations, some of which were outstanding in their contribution to improved understanding of railway mechanical problems and how they can best be solved.

An important educational feature was the exceptionally large and comprehensive exhibition of railway mechanical specialties and materials held under the auspices of the Allied Railway Supply Association, Inc. This showing ranged all the way from a large-scale model steam locomotive, fully roller-bearing equipped, to improved journal-box packing and devices designed to minimize hot boxes in freight cars.

The clever way in which the programs of the four associations were co-ordinated, with joint sessions on outstanding common problems, is to be commended. The value of a particularly well-done report may be greatly enhanced by such joint presentation. A striking instance of this was the Report on the Training of Personnel, prepared for the Locomotive Maintenance Officers' Association. Its value and wide importance, however, was so evident that it was presented before a joint meeting of the associations and enthusiastically received by an audience which must have numbered well over a thousand.

Passenger Traffic Sales

During the war, the passenger traffic manager of a large railway system stated: "Right now I am nothing but a glorified reservation clerk." After a moment's thought, he added: "Strike out that 'glorified'." What was true of passenger traffic managers was equally true of all passenger department representatives. They were so busy handling the details of increases in passenger traffic, up to 400 per cent on some railways, that they had no breathing spell in four years or more.

This does not mean that there was no planning for the future. A survey of schedule changes since the war and of plans for new services to meet competition shows that considerable constructive thought was expended on the subject. During the war, however, the emphasis was placed upon the handling of troops and necessary civilian traffic, while the matter of sales promotion was shelved. Now the time has come for passenger department representatives to "reverse the field" and devote attention once more to selling to prospective passengers the advantages of riding the trains. There are various methods of doing this, but the one adopted by the Santa Fe in July is among the most effective. In that month a meeting devoted entirely to passenger traffic sales was held in Colorado under the direction of T. B. Gallaher, general passenger traffic manager, which was attended by passenger representatives from every section of the United States. Plans of the Santa Fe for the introduction of new trains, new equipment and new schedules were described in detail and discussed by those present. There were also discussion panels on rates and tariffs, dining car service, solicitation, courtesy, baggage handling and many other subjects pertinent to post-war railway passenger service.

Such meetings serve a dual purpose. In addition to the obvious one of transmitting and interchanging information necessary in the solicitation of passenger traffic, they also serve to renew acquaintanceships and friendships among passenger representatives stationed in widely separated sections of the country and thus to establish and strengthen an esprit de corps which is most valuable in encouraging passenger solicitation forces to work as a team.

This New Ballast Cleaner Is Different

Machine developed on the Santa Fe has two giant wheels incorporating means for performing the major operations. Plan is to use it on two-year cycle on Western Lines

THE Atchison, Topeka & Santa Fe has developed and now has in successful operation a ballast cleaner of unusually large capacity, which incorporates a new principle in the design of such equipment. The machine is of the on-track type and is designed to clean the shoulder ballast and that in the intertrack space in double-track territory. It is expected that, fully perfected and operated throughout the year in accordance with a definite program or cycle designed to prevent the ballast from becoming excessively foul, the machine will be capable of cleaning the ballast on about 1,250 miles of track annually.

The new ballast cleaner is mounted on a specially-designed all-steel car of heavy construction and is drawn by a locomotive when in operation, being pulled at a speed of 2 to 2.5 miles an hour, depending somewhat on the condition of the ballast. The major operations involved in cleaning ballast are performed by and within two giant revolving wheels, one on each side of the car, which incorporate means for picking up the ballast, cleaning it, returning it to the track shoulder and wasting the dirt. The wheels are each mounted in a heavy structural-steel frame, which in turn is attached to the car in such a manner that it can be moved to and from the operating position and adjusted as necessary to accommodate the machine to changes in the ballast section. The two wheels are provided with separate drives and controls, and are, therefore, entirely independent of each other. They are mounted on the sides of the car somewhat back of the center, leaving the forward end available for the driving engines, the operator's platforms and other auxiliary features.

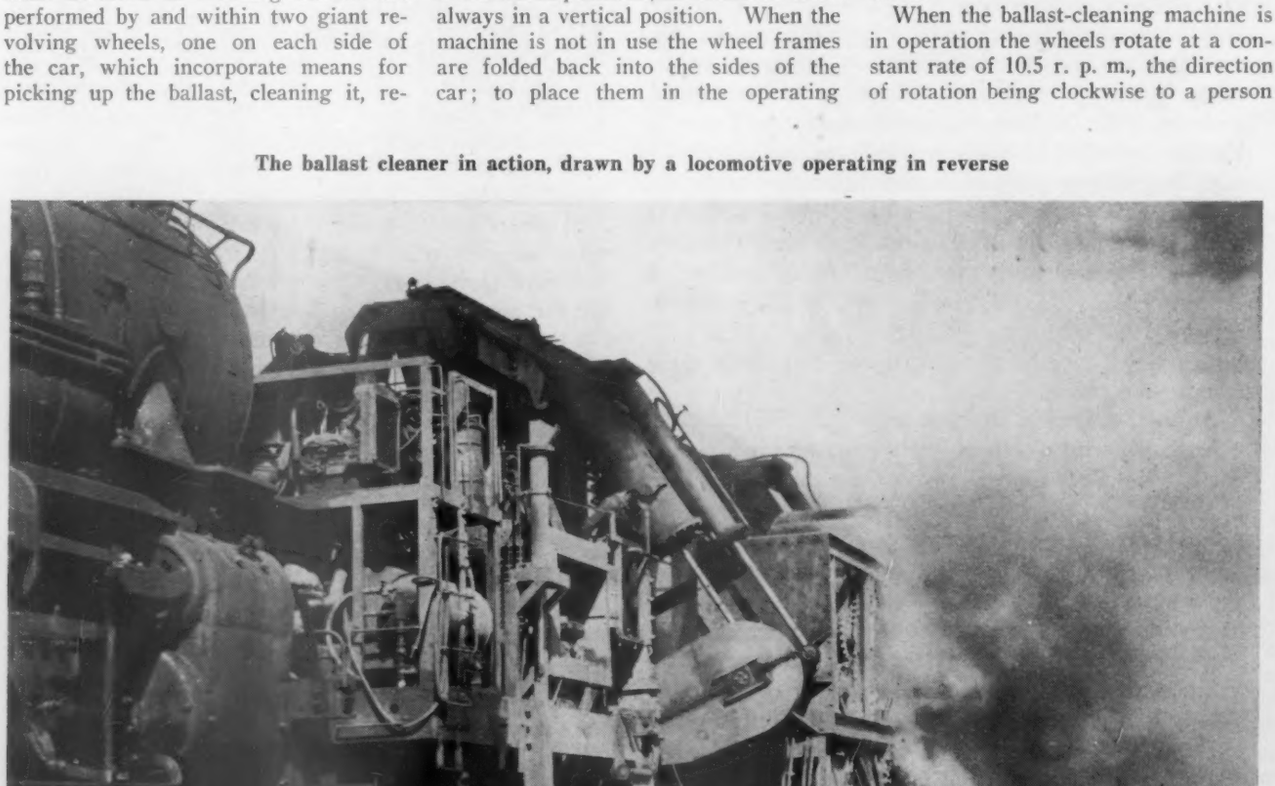
How Wheels Operate

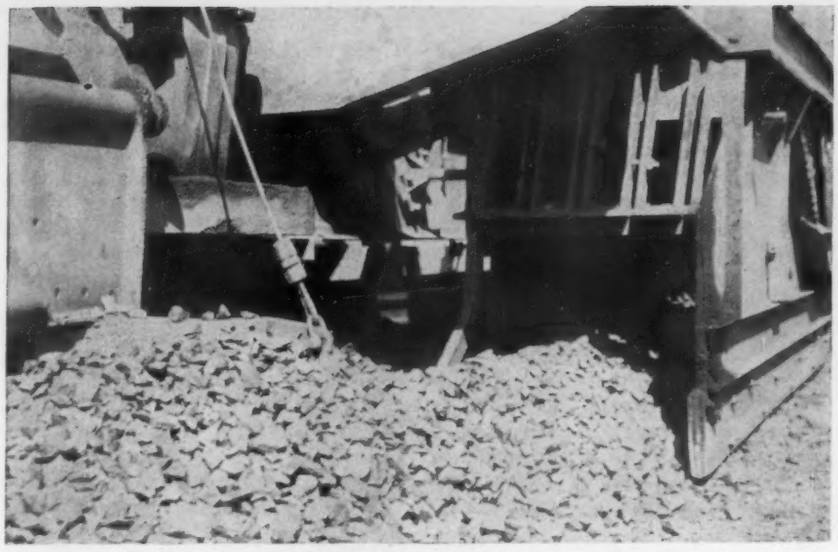
Each wheel frame is attached to the car by means of pantagraph arms so that, in being moved between the raised and lowered positions, the frame remains always in a vertical position. When the machine is not in use the wheel frames are folded back into the sides of the car; to place them in the operating position they are moved outward and downward as necessary. These movements of each wheel frame are accomplished by two 19-in. air cylinders, one at each end, which are used in conjunction with two 8-in. hydraulic cylinders for holding and locking the wheel frames in any desired intermediate position.

Each of the ballast wheels has a diameter of 12.5 ft., and is in reality a revolving rim, designed to pick up the ballast from the shoulder or the intertrack space and dump it over three banks of screening grizzlies located inside the rim in a fixed position. To accomplish this purpose each wheel consists of a series of steel buckets mounted between circular steel plates that form the side rims of the wheel, these plates being 36 in. apart. Each wheel is supported in its frame and rotates on a number of rollers fixed to the frame inside the wheel.

When the ballast-cleaning machine is in operation the wheels rotate at a constant rate of 10.5 r. p. m., the direction of rotation being clockwise to a person

The ballast cleaner in action, drawn by a locomotive operating in reverse





Forward end of one of the wheel frames. Note how ballast is piled in windrows by plow

standing beside the track with his left side toward the forward end. The buckets in the periphery of the wheel are so designed and positioned that the ballast picked up by them is dumped inside the wheel as they pass through the upper lefthand quadrant of rotation. As it leaves the buckets the ballast is thrown onto the three banks of grizzlies or bar screens, which are mounted inside the wheel in an inclined position descending toward the rear of the machine, the angle of the incline being 30 deg. with the horizontal. In each bank of grizzlies there are a number of separate grizzlies, with the lower end of each unit placed several inches above the upper end of the one below it.

The design of the wheel and the rate of rotation are such that, as the ballast leaves the buckets, it is thrown against the grizzlies with considerable force, and, since succeeding grizzlies in each bank are offset from each other by several inches, the particles of ballast are subjected to successive jarring movements as they pass over the grizzlies. The agitation of the ballast thus produced is such as to separate effectively from the particles any dirt clinging to them. As the ballast particles leave the grizzlies their direction of movement is downward and toward the rear, where they pass out of the wheel through spaces between the buckets.

Mounted in the lower rear portion of each wheel frame is a series of baffle plates by means of which the cleaned ballast is kicked downward in a lateral direction (toward the track) to the track shoulder. Other baffle plates suspended from the wheel frame at approximately the ends of the ties deflect downward ballast that otherwise would be deposited on the ties. Any ballast remaining on the ties is brushed off onto the shoulder by a wiper blade placed directly behind the ballast wheel and frame. By means of the several sets of baffle plates and the wiper blade, the ballast is returned to its proper position and slope in the track shoulder and no further shaping is required.

Dirt Disposal

The dirt and other foreign matter that is separated from the ballast as it moves over the grizzlies drops downward between the bars of these parts. Underneath each of the upper two banks of grizzlies is a metal deflector plate, by means of which foreign matter coming through the grizzlies is deflected sideways, falling downward in the spaces between the grizzlies and the sides of the frame.

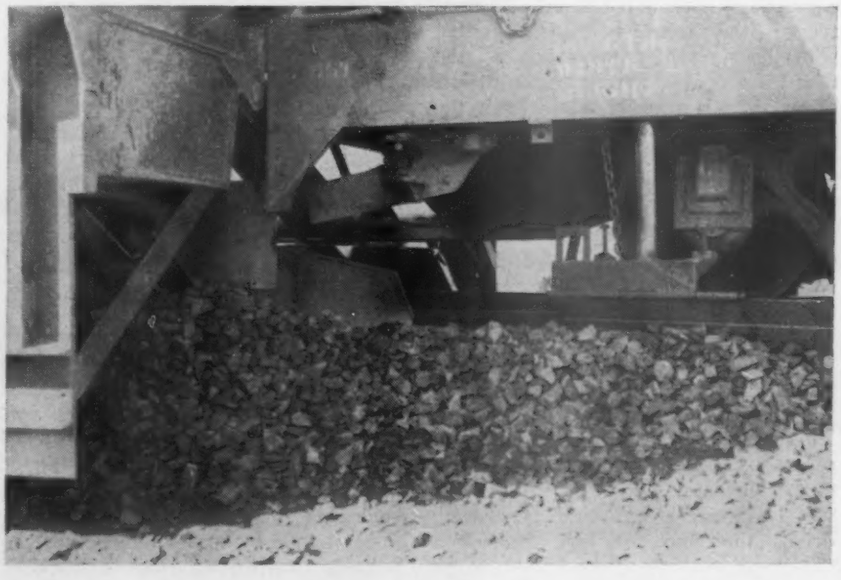
The dirt coming from the deflector plates underneath the two upper banks of grizzlies, and that falling directly through the lower bank, lands on an endless conveyor belt 42 in. wide near the bottom of the wheel, by means of which it is thrown outward onto the right of way. For use in double-track territory a conveyor extension, 14 ft. long, is carried on the machine, which is attached to the short conveyor in the ballast wheel on the inter-track side of the machine.

Pick-Up Blade

Directly beneath each ballast wheel is a transverse scoop or pick-up blade mounted between two longitudinal plates attached to the lower sides of the frame, these plates being 37½ in. apart. The pick-up blade is a heavy plate with its bottom edge on a slope of 1 to 9 downward away from the track, this being the standard subgrade slope on the Santa Fe. As the blade moves forward the ballast piles up ahead of it between the side plates and is raised sufficiently so that it can be picked up by the elevator wheel.

When the machine is operating in single-track territory the lower parts of both wheel frames remain as described above. For operation in double-track territory it is necessary to make a slight adjustment in the pick-up blade on the intertrack side of the machine, which consists of attaching an extension member to the blade, of such dimensions that the cutting edge is lowered six inches, retaining the same transverse slope. The purpose of using the extension blade is to make it unnecessary for the outer side plate to be forced into the inter-track ballast in obtaining a cut of the desired depth. Also, whereas the regular pick-up blade is about 36 in.

Rear end of wheel frame showing baffle plates for keeping ballast off ties, and tie-wiper blade (extreme right)



wide, the extension blade is only 27 in. in width and is fastened in place so that its inner end is even with the corresponding end of the regular blade. Thus, the overlap that occurs in the inter-track space when the machine is operated from both tracks is only about 3 in.

Scarifier and Plow

In advance of the ballast wheel on each side of the car are provided two devices by means of which the ballast is loosened and shaped to prepare it for being picked up by the elevator wheel. The foremost of these is a heavy, vertical scarifier tooth placed just beyond the ends of the ties, which is raised and lowered within a heavy guide housing by means of an air cylinder overhead. The purpose of the scarifier tooth is to make a preliminary break in the ballast and to remove any foreign objects that might interfere with the operation of the ballast-cleaning mechanism.

Behind the scarifier tooth is the second device for preparing the ballast. This is a plow which, with its forward end operating in the path formed by the scarifier tooth, forces the ballast outward away from the ties into a windrow of the proper width to be encompassed by the bottom side plates of the wheel frame. A stop extending from the sideframe of the car prevents the plow from moving closer to the track than the end of a 9-ft. tie, which is the longest tie used on the Santa Fe.

How Wheels Are Driven

As already indicated, each wheel is powered by a separate engine. These engines, which are mounted on the forward end of the car, one on each side, directly ahead of the respective ballast wheels, are both 135-hp. gasoline engines. The power take-off from each engine terminates in a herringbone speed reducer, the shaft of which is connected with the shaft of a miter box on the wheel frame by a roller-chain drive. The power is transmitted through the miter gears to two sprocket wheels, one on each side of the box. From these sprockets the elevator wheel is driven by two roller chains of the type used in drilling oil wells, one operating on each of the sprocket wheels and on a set of sprocket teeth extending around the side rim of the wheel.

The rotation of each elevator wheel is used to furnish power for the operation of the conveyor belt inside the wheel for disposing of waste material. This is accomplished by means of a set of internal gear teeth mounted on the outer side plate of the wheel. A sprocket wheel operating on these gear teeth drives the conveyor belt through a miter box.

The operation and all movements of each elevator wheel and its frame are controlled from an operator's platform situated directly ahead of the wheel in a slightly elevated position, where the operator has a clear view of the forward end of the frame and where his signals can be clearly seen by the crew of the pulling locomotive, which is coupled directly to the machine and which operates in reverse.

Auxiliary features of the ballast cleaner include a gasoline-driven compressor of 160 cu. ft. capacity, a gasoline-driven arc-welding generator, a pneumatic greasing system, a gasoline storage tank of 360 gal. capacity, and an oxy-acetylene cutting and welding outfit.

Operating Personnel

The ballast cleaner and its crew are under the direct supervision of a track supervisor who devotes all his time to this work, living with the outfit. The crew for operating the ballast cleaner (exclusive of the train and engine crews) is composed of two operators and two assistant operators. Frequently several section laborers are included in the crew to remove foreign objects from the ballast ahead of the elevator wheels. Also, the outfit is accompanied at all times by a welder.

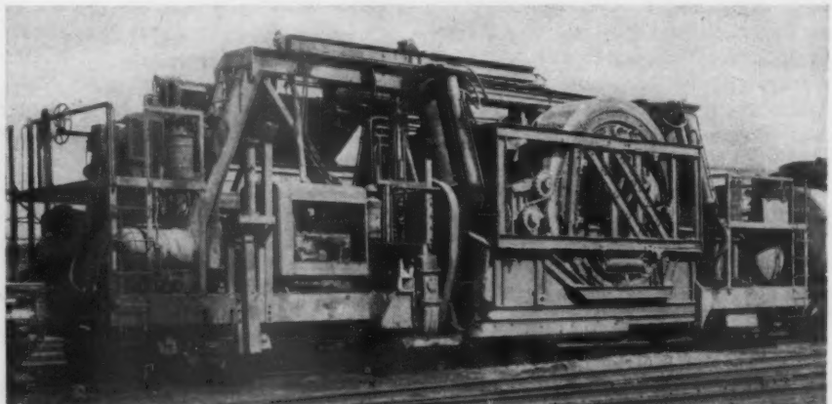
Plans for Operation

The program that has been worked out on the Santa Fe for the operation of the ballast cleaner contemplates that it will be assigned to the Western Lines of the road for the major part of each year. Much of this territory is located in so-called dust-bowl country where ballast is fouled relatively rapidly by fine wind-borne material which is deposited primarily in the ballast shoulders. There are 1,950 miles of track in this territory ballasted with crushed stone or slag, and it is planned to go over all of this mileage with the ballast cleaner every two years, cleaning half of it, or 975 miles, in alternate years. It is estimated that the aggregate savings to be realized by this program through lower track maintenance costs generally will amount to many times the cost of cleaning.

It is expected that the machine will be used about nine months of the year on the Western Lines, and that during the winter months it will be assigned to the Coast Lines and the Gulf, Colorado & Santa Fe. During the three-month winter period the machine will be given a general over-hauling, estimated to require about two weeks, while about another two weeks will be spent en route in commercial trains.

The machine has now been in operation about a year, and during this period it has been necessary, in order to obtain ballast of the desired cleanliness, to make two passes over about one-quarter of the mileage covered, the territory requiring recleaning being nearly all in double-track territory, with one pass sufficing for the remainder. In the future, when the ballast is cleaned on a two-year cycle, it is expected that one pass will be sufficient in all cases. On this basis, and with the machine fully-developed and working an eight-hour day, it is estimated that an average of 5.5 miles of track will be cleaned daily, allowing for delays occasioned in clearing trains.

The Santa Fe's ballast cleaner was designed under the general supervision of G. W. Harris, chief engineer, by T. A. Blair, assistant chief engineer, assisted by John R. Rushmer, roadway engineer. The machine was built by the O. F. Jordan Company, East Chicago, Ind.



The machine with wheel frames in retracted position

Mechanical and Supply Association Hold Meetings and Exhibit at Chicago

John M. Hall

Coordinated Mechanical Associations discuss developments in the repair and operation of locomotives and cars and view products of 105 manufacturers—Address by W. G. Vollmer and report on personnel training highlight joint meetings

A FOUR-YEAR backlog of developments in car and locomotive maintenance and operating practices furnished the topics for discussion at the first annual meetings since 1941 of the Coordinated Mechanical Associations and the improvements in equipment were demonstrated at the first exhibit since 1940 of the Allied Railway Supply Association. Over 2,300 members and guests registered for the simultaneous meetings of the Car Department Officers' Association, Locomotive Maintenance Officers' Association, Master Boiler Makers' Association, Railway Fuel and Traveling Engineers Association, held at the Hotel Sherman, September 4, 5 and 6, and for the exhibiting companies of the Allied Railway Supply Association.

At the opening session on Wednesday, 1,500 members and guests of all the associations assembled to hear W. G. Vollmer, president, Texas & Pacific, address the joint meeting. F. P. Roesch, chairman, Committee of Coordinated Associations, was the presiding officer and opened the meeting with a welcoming address, after the invocation. Mr. Vollmer was introduced by L. E. Dix, president, Railway Fuel and Traveling Engineers' Association, and fuel supervisor, Texas & Pacific.

On Thursday morning a joint session of the associations convened to listen to a report on "Training Personnel in the Railroad Industry" presented by F. K. Mitchell, general superintendent motive power and rolling stock, New York Central, and chairman of the committee that prepared the report, Mr. Mitchell was introduced by J. E. Goodwin, president, Locomotive Maintenance Officers' Association and chief mechanical officer, Chicago & North Western.

J. M. Hall Honored

A luncheon in honor of John M. Hall, director, Bureau of Locomotive Inspection, Interstate Commerce Commission, was held Thursday noon, which was also attended by members and guests of the five associations. After an introduction by J. E. Goodwin, Mr. Hall addressed the meeting to express his appreciation of the honor accorded to him. Because he had presented a paper in 1940 explaining the responsibilities of locomotive maintenance of officers and federal inspectors, Mr. Hall said it was hardly for him to mention in detail the functions of the Bureau. He did, however, summarize briefly the advances made in locomotive safety and performance since the Bureau was formed in 1911, attributing the improvements to better design, maintenance, and materials; water treatment; and contributions of the manufacturers and equipment supply companies.

A Fair Break for the Railroads

They constitute the nation's primary transportation agency—Grave danger from subsidies—A public relations job for employees

By W. G. VOLLMER
President, Texas & Pacific

Since this Association last met, American railroads have performed the greatest transportation feat in history. Pearl Harbor was still ablaze when trains roared out of the East with vital supplies for our exposed and vulnerable West Coast. In that dark hour of our history, the railroads rushed to battle stations. When Uncle Sam demanded land transportation, American railroads delivered. Not a ship was launched, not a soldier or sailor was sent overseas, not a single item of food or equipment was shipped to our fighting forces, without first having begun the journey as raw material or finished product somewhere, sometime, on a steel rail. When the final score was in, the railroads had

handled 97 per cent of the organized troop movements, and 90 per cent of all military traffic. Our industry proved beyond a shadow of a doubt that railroads are the nation's primary transportation agency. Other public carriers are but auxiliary to the railroads.

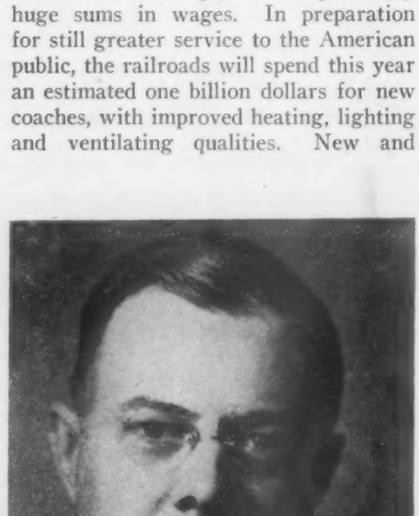
Yet these same railroads, bulwark of the nation's transport system, find themselves hedged about by government-subsidized competition and restrictive regulations of all kinds. As they face a future of leveling freight and passenger volume, as the nation's business adjusts itself to peacetime standards, the railroads must plan carefully and pursue vigorously an alert, progressive policy if they are to meet post-war competition successfully. During the war, sound, business-like methods of operation frequently were abandoned under the impact of military necessity. Getting the job done was the prime consideration. Those days are over now, and railroads must return to those principles of operation which were made secondary during the war.

Next to wages and taxes, fuel is the largest single item of expense on most railroads. Wages and taxes, of recent years, have become pretty much like the weather—we can talk about them a lot but there isn't much we can do about them. Fuel, however, is still an item of operating expense over which the individual railroad still has a fair amount of control. Fuel conservation, then, is a matter of intense interest to all of us.

I could talk for hours about the various phases of fuel conservation and its importance, and this convention could stay in session for weeks, discussing problems, adopting resolutions, and making plans, but while fuel use and conservation is an extremely vital factor of railroad operations, and merits the attention and interest of all serious railroad men, there are other aspects of the national railroad picture which cry out for our attention.

Every person in the nation has a stake in the railroads. This does not mean they are stock or bond holders, but rather that their daily lives are vitally affected and influenced by the services rendered by the railroads. Everything that we eat, wear, and use, sometime, somewhere is handled one or more times by the railroads. Although other systems of transportation play an important part in our social and economic life, the development and progress of the nation can be measured in terms of rail transportation. Man has yet to devise an inland system of transportation for handling mass movements of freight and passengers equal to the steel rail and flanged wheel. The railroads' average transportation charge of a fraction under one cent per ton-mile is the cheapest in America and the world.

Railroads today employ approximately 1,400,000 men and women to whom they have paid approximately five billion dollars annually in wages. In 1945 the American railroads made purchases amounting to $1,600,000,000 from nearly 15,000 different concerns who, in turn, gave employment to several million men and women and paid correspondingly huge sums in wages. In preparation for still greater service to the American public, the railroads will spend this year an estimated one billion dollars for new coaches, with improved heating, lighting and ventilating qualities. New and



W. G. Vollmer

vastly improved sleeping cars are being built; in fact, whole new trains are under construction—new trains that will embody the latest in comfort, luxury, safety and speed.

Significance of Fixed Plant

Of the four principal systems of transportation, the railroad is the only one that owns and maintains its fixed plant and pays taxes upon it. By fixed plant, we mean the roadway, rails and fastenings, signal systems and all the other structures and equipment necessary to provide safe and efficient freight and passenger transportation service. Other transportation systems have been spared the expense of building and maintaining their fixed plants. The taxpayers have provided them with magnificent highways, elaborate and expensive air terminals and services, and costly inland waterways. All that the other agencies of transport need for the operation of their businesses are the vehicles and equipment and the facilities to maintain and keep them in operation.

To illustrate this point, let us take the following example: If a highway bridge is swept away by high water, the trucks and buses simply use another highway while a government agency makes the necessary repairs. But if the same high water destroys a railroad bridge, the railroad must purchase the materials necessary for repairs and make these repairs at its own expense. And at the same time suffer financial loss due to interrupted traffic.

More than 300 terminal-type airports have been constructed in the United States by various city, state and federal governments. These airports are almost wholly operated and maintained at public expense. In Texas, there is a large and extensively used airfield which cost the taxpayers nearly $3,500,000. If the ordinary principles of business applied to the operation of this airfield—interest payment on the capital investment, amortization, and out-of-pocket costs of maintenance and operation—the annual expense would approximate $250,000. Three commercial airlines use this field and for the privilege of this use they pay $14,000, while the municipal government which owns and operates it for the taxpayers receives approximately the same amount of revenue from the pay toilets, pay telephones, and various concessions such as restaurant and newsstand. Based on the number of flights daily—landing and take-off considered as one operation—the unit cost per flight amounts to about $8.23. Of this sum the airline pays 53¢; the taxpayers $7.70.

Plans are now being made to build in New York City an airport to cost about $200,000,000. This figure represents more than the total investment of all the nineteen certified commercial airlines. Neither the City of New York, nor the state or federal governments will derive any taxes from this costly facility; it will be a tax consumer, not a tax producer, for the maintenance cost will be borne by the taxpayers. Now, let us compare this with the two large railroad stations in New York City, the Grand Central and the Pennsylvania Stations. These two stations cost $200,000,000 and were paid for and are maintained by the railroads out of earnings. And in addition, these two railroads pay state and local taxes of $5,000,000 annually.

According to the Report of Investigation and Research on Public Aids to Domestic Transportation, it is revealed that "Total federal annual expenditures for navigation increased from $37,652,000 in 1922 to well over $100,000,000 in each year from 1934 to 1940." It is customary to think that rivers are natural ways of transportation, but it is by no means true. In order to be serviceable to boat and barge operations, they literally have to be rebuilt. The Missouri is a good example of this—to

dredge this stream and make it navigable from its mouth to Kansas City cost $275,000 per mile, and the annual maintenance cost is $5,000 per mile. From Kansas City to Sioux City the federal government spent $243,000 per mile to make the river navigable for barges, and the annual maintenance cost per mile is $6,000. Such huge expenditures of government funds seldom show up as a separate tax item. Instead, the cost of supporting such uneconomic modes of transportation as the inland waterways is hidden in the price we pay for anything which bears a federal tax. Yet we hear it repeated over and over that water transportation on our inland waterways is cheap. No transportation is cheap or economical if it must be heavily subsidized in order to compete with a self-sustaining system. Subsidies to any form of transportation compel economically sound enterprises to support those which are not.

Railways Not Subsidized

A great many people have the mistaken idea that railroads were heavily subsidized by the federal government during the early stages of their development. The federal government did make grants of land to a number of railroads as an aid and encouragement to those railroads to extend their lines through vast stretches of unpopulated and unproductive lands. But of the 235,000 miles of railroad in the United States, federal aid in the form of land grants was given for only 17,000 miles. In accepting this land grant aid the railroads were required to handle, free of charge, all government freight and military personnel, including civilians traveling on government business. This requirement was later amended to allow the railroads to charge half rates and half fares for government freight, troops and civilian personnel. Although federal aid was received for only 17,000 miles of railroad, all of the 235,000 miles were subject to an equalization agreement whereby all railroads transport government freight, military personnel and government civilian personnel on a half-rate and half-fare basis. As a result of this agreement, the railroads refunded nearly twenty million dollars each month to the federal government during World War II. Approximately a total of two billion dollars will finally have been refunded by the railroads to the federal government for lands aggregating 174 million dollars in original value. No other system of transportation has, at any time, handled government freight at reduced rates or fares.

During the twenty-year period from 1921 through 1940 when most of the existing road system was built to accommodate the ever-increasing volume of motor traffic, expenditures exceeding 42 billion dollars were made by federal, state and local agencies to build, improve and maintain roads and streets. In 1940 these expenditures amounted to nearly two and one-half billion dollars and it is expected that expenditures on this scale will be resumed. While this vast network of highways was constructed for the public good, they are used by commercial operators of truck and bus lines in conducting their businesses for a profit. Again it is an example of a transportation agency called upon to provide only the vehicles and equipment necessary for transporting freight and passengers. Its fixed plant, that is, the roadway upon which it operates, is provided by federal, state and local taxes.

The railroads are certainly not opposed to good highways and streets, nor are they opposed to the taxpayers, if they elect to do so, furnishing the airlines with air terminals and service facilities, and the inland water carriers with improved and federal-maintained waterways. What the railroads do oppose, and feel justified in criticizing, is the policy of underwriting, through taxes, the legitimate expenses of commercial transportation agencies engaged in business for a profit.

A sound, solvent and efficient national railway system is essential to continued economic progress. Railroads are the steel cross beams on which our whole economy rests. American industrial growth can be measured in terms of transportation—rail transportation. As demonstrated by the emergency of war, and proved by the recent two-day halt in rail services, railroads are, and for the foreseeable future will continue to be, the basic and essential transportation agency of the United States.

For a Sound Transport System

In all the world there is no such coordinated national system of transportation as is conducted in the United States by its several hundred railroads. These railroads are almost wholly the creation of private capital, and are maintained by private funds and operated by business companies. They are, nevertheless, in the highest degree, public servants, providing, under public regulation, a transportation service unequaled in volume, extent, variety and economy. During the decades of their history, the steady trend of railroads has been toward improved service with lower rates for the public and higher wages for employees. Since just before the first World War, wages as measured in cents per hour have quadrupled and taxes have multiplied many fold, but the average charge for carrying a ton of freight one mile has increased less than one-third, and the average charge for carrying a passenger one mile is actually less than it was in 1916.

The Association of American Railroads recently filed an 82-page discussion of the post-war railroad situation with the House Interstate and Foreign Commerce Committee. In this discussion, the Association outlined an 8-point program for the development of a sound national transportation system:

1—Each agency of transportation should be required to pay its own way.

2—Each agency of transportation should pay its proper share of taxes for the general support of government.

3—Government expenditures for transportation facilities should be subject to the same tests as to public convenience and necessity and economic justification as are applied to private expenditures for similar purposes.

4—Operation of any two or more different forms of transportation by a single interest, under suitable regulations, should be permitted in the public interest.

5—All carrier regulations should be administered by the same governmental agency in order to insure equality of treatment.

6—Provisions of the anti-trust laws should be reconciled and harmonized with the national transportation policy as declared by Congress.

7—Means should be provided for adjustment of railroad indebtedness without resort to formal bankruptcy or receivership proceedings.

8—In the interest of better relations between the railroads and their employees, there is need for improvement in the procedure now provided by the Railway Labor Act for the adjustment of disputes growing out of grievances or out of the interpretation or application of agreements concerning rates of pay, rules, and working conditions.

The railroads are looking to the future, to the changes which advancing technology is bringing, and to the better service which continued investment in plant and equipment will make possible. They should be assured of such governmental policies as will encourage rather than hinder the development of the better transportation service which they can and should render.

Railroads are so vital to the safety of our country in time of war, and to the welfare of the nation in time of peace, that they must continue to operate, either under private enterprise and initiative, or under government control. The latter alternative is certainly not in keeping with the economic philosophy of the majority of the people in the United States. America was founded and has grown to greatness under the free, competitive enterprise system. Subsidies that give one system of transportation competitive advantages over another are contrary to the American system. All the railroads ask is that the principles of free, competitive enter-

prise apply to all. Let the service each renders the nation be the measure by which it justifies its existence. Real progress comes not through the oppression of one industry to promote another, but through equal opportunity for all. The railroads seek only that. Given the opportunity to compete on an equal basis, the railroads will continue to set the pace of progress in America in the future as they have in the past.

Speak for Your Industry

You, as members of your respective associations, are the accepted leaders in your respective fields of endeavor. You are more than that, however. You are railroad men representing the welfare of your respective railroads at all times. Furthermore, you are responsible citizens of the communities and the nation in which you live. It is vital to the industry to which you are devoting your services and perhaps all of the working years of your lives, that everyone of you who possesses the faculty of voicing his views in public, speak to every citizen and group of citizens everywhere at every opportunity and tell and sell them the facts as I have related them to you today. I have learned that it is the duty of every railroad employee, no matter what is his rank or position, to make it crystal clear to American citizentry that the railroad industry is being unfairly treated by the people's governments—local, state and federal—by the continued subsidization of other forms of transportation, and the continued failure to assess adequate user charges against all commercial users of transportation facilities built and furnished at the sole expense of us taxpayers. We must drive this home to all our people so that they will know that the railroad business is an essential part of all our people's lives and welfare and deserves fair and equal treatment with all of our competitors. We must tell them and show them and keep reminding them over and over again of this most unfair inequality which besets our industry today and which, to my mind, is one of our biggest problems, if not the biggest.

Railroad men and management have taken too much for granted in recent years. They have been silent when they should have been articulate. Management has not even fully informed railroad men and women on the payrolls of their stake in this problem of unfair and unequal treatment with which our industry is afflicted. Collectively we have not even gotten a good start toward doing a first-class public relations job.

So I say to you men: "What are you going to do about it?" Are you going to remain quiet and take no part in our battle of seeking fair treatment for our railroads? Don't you think it is about time for you to take an aggressive part in a campaign in this country to sell the facts of the story? Is it not time for every man and woman who is skilled in the presentation of ideas to devote considerable of his and her thought and energy and skill and experience to this problem?

I am not going to outline to you in great detail just how to do this job. I merely point out to you that this is a job which must be done. It must be done by our railroad men and women. It must be done in the communities in which we live and work and go to in our every day travels. It must be done in our families and among our own friends. I am calling on all of you for your services in this campaign, for there is a real need. I hope that I can and do inspire you to give deep and searching thought to what you can do as individuals. We are at a cross-roads today. We are going one way or another. There is a right direction for us to go—but we need you men, and the women too, to help talk our industry in that direction. Will you help to point the way and will you sell this terrific problem of your industry as you have never sold anything so well before?

Training in the Railroad Industry

Secret behind creation of the proper type of organization found in personnel selection and training—the officer's heaviest obligation

F. K. Mitchell

[What follows is an abstract of a report of the Locomotive Maintenance Officers' Association Committee on Personnel Relations presented at a joint session of the Coordinated Mechanical Associations at Chicago, September 5. The committee is composed of F. K. Mitchell (chairman), general superintendent motive power and rolling stock, New York Central System; C. F. Brooks, mechanical engineer, Erie; C. H. McAmis, schedule supervisor, Missouri Pacific; K. Berg, superintendent motive power, Pittsburgh & Lake Erie; W. H. Hinerman, assistant to superintendent motive power, Chesapeake & Ohio; H. J. Schulthess, chief of personnel, Denver & Rio Grande Western; G. A. Howard, supervisor apprentice training, Canadian National, and Roy V. Wright, managing editor, *Railway Age*.]

The heaviest obligation which rests upon the shoulders of any railroad officer is that of creating and training an efficient, well-informed, smooth-functioning organization. Surely the locomotive maintenance officer should consider this obligation no less lightly than any railroad executive. He should realize that only by so doing can he guarantee to his superiors and to the management of his railroad the continued successful operation of his department. Further than this, he should realize that only by so doing can he successfully conduct his own assignment and minimize his difficulty in so doing.

The secret behind the creation of the proper type of organization is found in the proper selection and training of its personnel. The training of personnel should be wide enough in scope to cover all crafts and classes of employees from the time of their employment until their retirement. Such a training program naturally divides itself into two parts, the prepromotional training and the post-promotional training of the individuals. This principle has been recognized over a long period, but, unfortunately, the recognition has not brought forth any too sound a system of carrying it into effect.

Prior to World War II, prepromotional training was confined all too universally to apprentice training systems, some of which were more-or-less haphazard and entirely inadequate, and others in varying degrees more effective and complete. The shortage of man-

power and the necessity to hurriedly train previously unqualified men for important work during the war brought on several other training procedures, notably so-called "JIT" or Job Instruction Training and "JRI" or Job Relation Instruction. In the main we believe these were only stop-gap measures, by-products of the war situation, but that they did show necessity for some parallel type of training to be conducted continuously.

The effectiveness of this prepromotional training in the past was not too good, this being due, first, to the fact that not enough attention was paid to the selection of apprentices; secondly, to the fact that the types of men were not available for selection, and finally, to the fact that railroad management was slow in awakening to the realization that something more than a precursory attempt to select and train men was an absolute necessity. Far too often the task was taken lightly, was unthorough, unstudied and consequently ineffective. There was too generally a misconception of the goal which such training should accomplish, and too little thought given to taking the material which was available, even though it were inferior, and making it adequate for some definite gainful purpose. During the last few years, there was altogether too much tendency on the part of many to throw up their hands and blame their failure on the manpower shortage than to get down to the basic factors involved in the problem and work it out in a logical, thorough manner.

Suffering from Mistakes

Generally speaking, the railroads of the country are suffering at this time from these errors. There is still a manpower shortage and there is still a tendency to take the attitude that, because of the manpower shortage, nothing much can be done about the situation until plenty of men are available. On the contrary, we believe that now is the time to plan a more effective system of selection and training for the future and to get it into operation in order to take advantage of the manpower as it becomes available.

The remarks which we have made about the inadequacy of selection and prepromotional training of personnel are no less pertinent in connection with the post-promotional training which has been carried on in the past. Far too often men were promoted for reasons fundamentally unsound, and far too often, even though the appointments were sound, the appointees were placed on supervisory jobs with no more instruction that "there it is, go to it." If by reason of the individual's characteristics and background he was successfully able to carry out the assignment, it was not due to any planned assistance which he received after his promotion. If the appointee was not successful, seldom did it happen that anyone in authority was sufficiently interested in why, to point out to him his errors and attempt to make him satisfactory through proper instruction. Unfortunately, the usual procedure was to pursue the easiest course, that is, take the appointee off the job, set him back to his previous status, and appoint someone else. Such a procedure naturally had only ill effects in discouraging men from accepting promotion, and in many instances management lost the advantage of the experience which the individual had already gained, and which, if directed in the proper channels and properly supervised, might have become beneficial. These malpractices were quite often the outgrowth of an overabundant supply of personnel.

During the war years when the demand for supervision was greater than the supply, and when unfortunately the burden on any supervisor was far greater than normally, we began to awaken to the necessity to make the most of such material for supervisors as were available. Even at that our efforts to instruct and train supervisors in general were pitiful.

This committee has looked into the methods pursued and the results obtained on numerous Class I Railroads. Information on this subject was obtained from the personnel officers of these roads through a questionnaire. The cooperation and prompt response from those personnel officers are very much appreciated, and has been quite enlightening. We found, unfortunately, that although some roads seem to be doing a grand job, far too many have been content to try in a more-or-less superficial way certain instructional programs prompted by state, federal and other outside interests, but that far too few have done anything really constructive, and many at the moment are doing little or nothing. The lack of a planned system seems to be prevalent. The very lack of such a system is responsible for the dilemma in which many railroads now find themselves. Generally, however, they are beginning to awaken to the realization that something must be done about the situation, and in this respect we find encouragement. We feel, as was expressed in connection with the remarks on prepromotional training, that now is the time to establish a uniform well planned program so that the situation in the very near future will be materially improved.

The committee would like to suggest for consideration and action a few pertinent ideas which it believes should be incorporated in any such program.

Our suggestions are enumerated below and will later be discussed:

1—A sound policy on the employment of apprentices.

2—A definite and thorough program of education for regular, helper or special apprentices.

3—A definite incentive program for trainees.

4—An adequate system of keeping in touch with the development and the capabilities of each trainee.

5—A definite sound policy on the selection of men for promotion to supervisory positions.

6—A well planned method of training and the instruction of selectees for promotion.

7—A test and recheck of promotional selectees.

8—A policy on initial permanent supervisory assignments.

9—A definite promotional incentive plan.

10—An adequate, on-the-job supervisory, training program.

11—An adequate program for study and recording the capabilities of supervisors for advancement to executive positions.

12—A policy covering the selection and training of men for executive positions.

Employment Policy

The time is past when inferior material should be considered for employment as apprentices. The policy of waiting for applicants to come to the railroads for employment should be discarded. The practice of employing apprentices only because of friendship, relationship or other such reasons tends to lower the standard of the personnel. The time has come when the railroads should go out to the high schools and trade schools and select the men which they desire to bring into their employment. Except in unusual circumstances regular apprentices with less than high-school education should not be employed. Even these should be carefully picked. The cooperation of educational institutions can be had, and should be sought. No young man who is not eminently suited or fully convinced that he wishes to make railroading his life's work should be employed. In selecting these new apprentices, unless the employer is convinced the candidate is of such timber that his capabilities will enable him to advance far beyond the stage of journeyman, he should not be accepted.

Through careful analysis of employment needs, only sufficient apprentices should be employed adequately to protect retirement, mortality, promotion and losses due to normal resignations. It should be very definitely known that at the time of graduation there will be a

position for him in order to avoid discouragement which has existed in the past through necessity to lay off apprentices shortly after they had completed their apprentice courses.

The employment policy should include a frank discussion with the candidate which would clarify for him definitely what he may expect in the way of training, wages, promotions and responsibilities, which means that he should be inspired with the idea that the apprenticeship is not merely a stepping stone to journeyman mechanic's rate, but opening the door to a railroad career in which the highest positions are the only limitations.

The employment policy should, of course, include such definite features as age limitation, physical qualifications and moral standing.

The same procedure, and most of the same factors, should be incorporated in the employment policy covering special apprentices, the chief variation being the education requirement, which should be not less than bachelor of science degree in mechanical or in some specified branch of engineering. It is realized, however, that a variation from this requirement may be advisable in that certain college students, who have definitely made up their minds prior to graduation that they wished to follow railroad work, might be given an opportunity to start their special apprenticeship before completion of their schooling, and that others who already had railroad experience as regular apprentices and then had gone through college should be credited in their special apprentice training with the time served as regular apprentice.

In order to increase the effectiveness of the above mentioned employment policy, we would strongly urge that the opportunities afforded young men through employment with the railroad be properly and extensively publicized through paid advertising in local newspapers and high-school and college publications. The necessity for such an advertising campaign is emphasized by the all too prevalent tendency on the part of our nation's universities to discourage their graduates from accepting employment with the railroad companies.

Program for Education

It is strongly urged that every Class I railroad afford to their apprentices a training program consisting of both on-the-job and school-room training. The present trend seems to be toward giving labor organizations a greater hand and more responsibility in this training program. Typical of this trend are the agreements now in effect on the New York Central, the Union Pacific and the Chicago & North Western. The first two mentioned provide for training to be done on the railroad under the supervision of an apprentice committee composed of members of both management and labor. The latter provides for apprentice training to be carried on by an outside agency and in cooperation with management.

(Attached to the report, as exhibits, were copies of the apprentice training agreements of the New York Central and the Union Pacific as typical examples of the type of agreement where the training is carried on under the supervision of a committee composed of members of both management and labor; the agreement of the Chicago & North Western as typical of the agreement where the training is carried on by an outside agency in co-operation with the management. Also attached were the special apprentice agreements of the New York Central and the Pennsylvania and samples of several forms and reports used by the New York Central, Pennsylvania and the Reading in rating and recording the work of personnel under training.—EDITOR.)

Trainees' Incentive Program

It is definitely felt that, if the training program for our apprentices is to be effective, there must be definite incentives set up, and that these should be used to inspire the apprentices, whether they be regular, helper or special, to greater activity, more thorough study, and ambition for advancement. It has already been pointed out that, in the hiring of apprentices, the incentive idea should be instilled, in that they should be fully informed of what the possibilities of advancement are. There are a number of other incentives which may prove very effective. Inspection trips to other shops and even to outside industry offered to those who show the most proficiency and interest in their work. Opportunities to participate in special test work is a further incentive which may be found effective. Opportunities to apprentices to act as assistant instructors when they show unusual proficiency can also be used to good advantage. It is believed, however, that one of the greatest incentives which can be offered, both from the point of benefit to the apprentice and to the railroad, would be the creation of certain annual scholarships to be awarded to the apprentice in a given territory who throughout his regular apprentice course shall have shown the greatest proficiency. It is suggested that these scholarships should be at selected engineering universities and should incorporate a provision that those awarded such scholarships shall, on the one hand, obligate themselves to continue their employment with the railroad company after completion of their college courses, and, on the other hand, the railroad company employ them upon graduation. It is felt that there are and always will be, among regular apprentices and perhaps even among the helper apprentices, highly qualified men who, only by reason of financial embarrassment, have not had the opportunity of a college education and if given an opportunity of a college education at the expense of the railroad company will develop into excellent supervisors and executives. It is pointed out that such a procedure would not only raise the standard of the railroad company's personnel, but would at once tend to erase any feeling which may now, or in the future, exist against the college graduate.

For many reasons a thorough and complete record of the apprentice's training development and capabilities should be kept. This is true even though no incentive plans are in existence, and even more true and essential where such plans are followed. On the one hand, it is highly advantageous to the railroad company to know exactly what progress and what possibilities each of the trainees are making and have. If there are to be incentives and awards they must be made on an entirely fair and impartial basis, and only by the use of such records can this be done. We shall make no attempt to recommend any particular system.

Training Selectees for Promotion

The tendency which has existed in the past to make haphazard selections of men for promotion to supervisory positions is so preeminently erroneous, and unfortunately so widely followed, that plans to correct the situation should be instituted at once. The time to begin the selection of these men is during their apprenticeship. Records will be of great value if properly used, but the record should not cease when the apprentice course is finished. Every well-organized department of any size should have at least three candidates for every supervisory position. The candidates for the minor positions should be among those who have graduated from the apprentice courses. It is felt that it should be made known to those men that they are considered candidates for certain positions and that their desires should be consulted as to what possible openings may meet their approval. It is well that they know they are candidates and that their actions and development are being watched, and that they know when selections among them are made why other individuals are given first preference and what they need to do to rate first preference.

It is not considered sufficient merely to select the men who are candidates for

supervisory positions, but it is highly advisable, after their selection, that they be trained in the job for which selected. Possibly these candidates should have class-room training which should include instructions, lectures on the responsibilities carried by various supervisors, how their work should be conducted, what their assignments are, how these assignments can best be carried out and how the work coming under such supervisors must be done. They should, perhaps, be made familiar with such pertinent features as the federal law covering rules and regulations for inspecting and testing various types of locomotives and tenders; the company's mechanical regulations and special instructions covering the work which is assigned to various supervisors; the safety rules and general safety policies; the labor agreements involved; the handling of men; the cooperation necessary between the supervisor and his superiors and with other departments.

It may be well to bring to these schools problems for solution which have to do with the every-day occurrences in connection with the above. For example, theoretical labor problems, such as grievances, discipline, etc. All of these things and many more are felt to be essential training features.

Test and Recheck of Selectees

Each candidate for a supervisory position should have an opportunity to handle minor supervisory positions on a temporary basis in cases of illness, vacation, etc. Let first one and then another have the opportunity. Find out by so doing whether there has been an error in the selection of a candidate and at the same time develop supervisory confidence in the selectee.

Right here it might be pertinent to suggest that after each such tour of duty, the selectee be given an opportunity to discuss his experience and the problems which he ran up against before the school of selectees in the presence of a competent advisor so that all may benefit thereby, and be properly advised as to how such problems should be met. This process may eliminate entirely some selectees previously considered as good material, and at the same time it would have a tendency to eliminate the possibility of a young man being assigned to a permanent position and then having to be demoted.

Initial Assignments

If all of the training and careful observance of candidates for supervisory positions have been carried out, when the new supervisor goes on a permanent assignment for the first time he will find it far less difficult to acclimate himself to the conditions of his new position. Such assignment should incorporate, first, an understanding with the candidate that the position to which he is being assigned is one of such a nature that he is confident he can handle, and further, one which meets with his approval. It is fundamental that no man can be satisfied or successful on any assignment in which he is not whole heartedly interested and does not enjoy. To assign a man to any other type of position is unfair to him and to management. The policy should likewise incorporate the sponsorship of some older supervisor whose duty should be to advise and counsel the new supervisor to the end that any problems which he faces that are not thoroughly understood by him may be clarified. It is suggested that when the new supervisor errs, he should not be criticized on the first error, but the error should be called to the attention of the sponsor, if such sponsor is not aware of it, and by him to the attention of the new supervisor in the nature of fatherly advice. If, after so doing, the new supervisor is still prone to commit the same type of error and is found entirely unsatisfactory in the position to which he has been promoted, it should not be the policy immediately to demote him, but an attempt should be made to find a supervisory niche in which he can function properly.

It is felt that it is much better to make a good supervisor out of a mediocre one with some shortcomings than to attempt to fit an entirely new candidate into the supervisory ranks. On the other hand, if it is definitely determined that the appointment was made in error and the appointee cannot be made into a satisfactory supervisor, he should be told quite definitely what his shortcomings are, if and when it becomes necessary to demote him.

Promotional Incentive Plan

Every supervisor should know whither he is bound, what the road of advancement is to be, the salaries of the supervisory positions he may aspire to and the responsibilities. He should be encouraged to conduct and train himself so that when the opportunity comes he can accept the proffered advancement with confidence and with a reasonable certainty that he will be successful. To inspire him to this end, he should be made a part of the department or shop management in that he should know what the policies of the management are, why things are done as they are done, and that as a part of the management his ideas and recommendations for the improving of the quality and character of the work or operation of his department will be considered carefully and given an opportunity for trial, if found feasible. He should never be discouraged in offering constructive criticism or suggestions. If there are departmental meetings at which he is not normally required to attend, he should have opportunity to attend them occasionally in order to understand the problems of his superiors and his management. The rates of pay of any supervisory position should be commensurate with the duties and responsibilities required of him and should be sufficiently above the men over which he has supervision to make it worth his while.

On-the-Job Training Program

It is believed that no development of a supervisory personnel improvement program can be carried out without an adequate system of instruction. Such systems as conference methods have been explored. Job instruction and other similar programs are being used with varying degrees of success. It is our thought in connection with these programs that certain fundamental features should be observed. First, they should be made interesting and should apply in a homely method to every day problems of the supervisor. As little theory as possible should be injected therein, and as much practical material as possible should be used. They should not be of a burdensome nature, but it should be recognized that the supervisor has many routine duties which require a large part of his time while on the job, with many obligations which require much of his time when off the job. With that recognition these training courses should be designed to give him the greatest benefit in the minimum time. There are a number of outside agencies, private, federal and state, which can be taken advantage of in carrying out these courses. The effectiveness of their work is believed to be tied up closely with the problem of making their respective methods apply intimately with railroad problems. If there is any tendency toward attempting to instruct railroad supervisors by instructors not thoroughly familiar with railroad problems, it should be discouraged. Perhaps the most effective supervisor training which can be devised will be found to be home-made and centered on local well-recognized problems and conducted by well-known and respected company employes.

Capabilities for Executive Positions

The study and recording of a supervisor's capabilities for advancement to executive positions is one of the most important problems yet discussed, and is likewise probably one which has been the most neglected. At this stage, the

field has been narrowed. The number of likely candidates is few. Peculiar characteristics fundamentally required for such candidates are not found in all supervisors no matter how successful they may have been in relatively minor positions. In the selection of men for such positions as master mechanics, shop superintendents, superintendents of motive power even greater care must be exercised than in any of the selections heretofore discussed. These men will not only be required to conduct extensive departmental operations, but become contact men with other departments and even with the public. These requirements necessitate broader vision, more thorough training, greater capabilities, and finer personalities than the average. They must be men who have been trained to be conscious of costs, somewhat familiar with accounting methods, railroad operation in general, and with public relations.

Therefore, in order to be doubly sure that selections for these positions are properly made, an intimate knowledge of the possible candidates must be had. In order to obtain this intimate knowledge, the men in key or executive positions should have even better records of possible candidates than is the case when less important positions are to be filled. A knowledge of the candidate's private and public life is essential, a knowledge of how he reacts under pressure and adverse circumstances, and how he accepts responsibilities. A knowledge of whether or not he is capable of making quick correct decisions must be had; in fact, in making these selections almost everything must be known about a man before it can be established that he can be a satisfactory candidate. Some well rounded out, thorough method of obtaining this information on the possible candidates is highly desirable.

Executive Positions

In view of the fact, as previously mentioned, that careful study of the candidate must be made to insure against any failure to select the proper man, it is highly desirable in any organization that there be sufficient assistant executives so that the selectees may be assigned to these positions, given responsibilities as they are able to assume them and trained thoroughly before they are advanced to the executive position. It is not so much a matter of whether the duties and burdens evolving upon the executive require an assistant or assistants that should determine whether these positions are existent, but rather the necessity to use them as a proving ground for the man or men who must eventually step into the executive position. It is not essential that all such candidates be from either the ranks of those with college education or from the ranks of those who have not had college education. Many men in either category have proved far superior to those in the other category when the opportunity to exercise executive authority is given them. Although the satisfactory candidates for such positions should have a good mechanical background, thorough fundamental training and experience, these are not the most highly essential of the qualifications; rather they are the qualifications of the general group from which executives should be selected, but from among these the candidates with the best personalities normally will prove to be the most successful. The training of these candidates, after they have been assigned to assist executives, should be general. The committee is of the opinion that the system such as is being tried out on the Denver & Rio Grande Western may assist in the training of candidates for executive positions.

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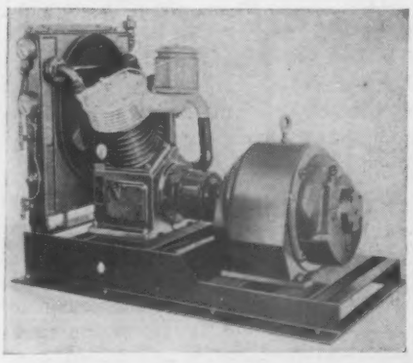
"Departmental" Air Compressors

The Davey Compressor Company, Kent, Ohio, announces the production of a new line of industrial "departmental" compressors of the stationary type, available in capacities ranging from 60 cu. ft. to 315 cu. ft., inclusive, with the air delivered at 100-lb. pressure. The smallest unit, having one low and one high-pressure cylinder, and requiring a 13-hp. electric motor, is 66 in. long, 26 in. wide and 43 in. high, and operates at 1200 r. p. m.; while the largest unit, having 4 low and 2 high-pressure cylinders, and requiring a 71-hp. motor, is 134 in. long, 36 in. wide and 55 in. high, and also operates at 1200 r. p. m. There are three intermediate models with capacities of 105, 160 and 210 cu. ft.



The Davey Model 60 departmental compressor

These compressors are designed for installation in individual plant departments and are offered as modern, economical replacements for large central compressor systems. For instance, under the departmental system, if six departments require compressed air, six separate compressors of the proper capacities are installed. Each operates independently, although several units are connected together to provide a power reserve for overpeak loads, or to maintain service in case of breakdowns. It is claimed that the departmental compressor system has the following advantages: (1) It eliminates pressure losses common to the long distance piping of air; (2) it requires less power to force the air from compressor to the job; (3) the installation cost is lower than for large central systems; (4) the departmental compressors work only when individual departments need air; (5) pressure and air supply may be adjusted to exact point of efficiency for each job; (6) the system can be easily and economically expanded; (7) it eliminates shut downs due to central compressor failure; (8) it eliminates the need for emergency standby compressors; (9) it permits use of air-cooled instead of water-cooled units; and (10) it cuts repair costs.

* * *

British Combine Photo

Track-Laying in Great Britain; the "foreman ganger" lining up "sleepers"

C.T.C. on a 131-Mile Subdivision

A project on the Burlington between Hastings, Neb., and McCook is an important part of Chicago-Denver route

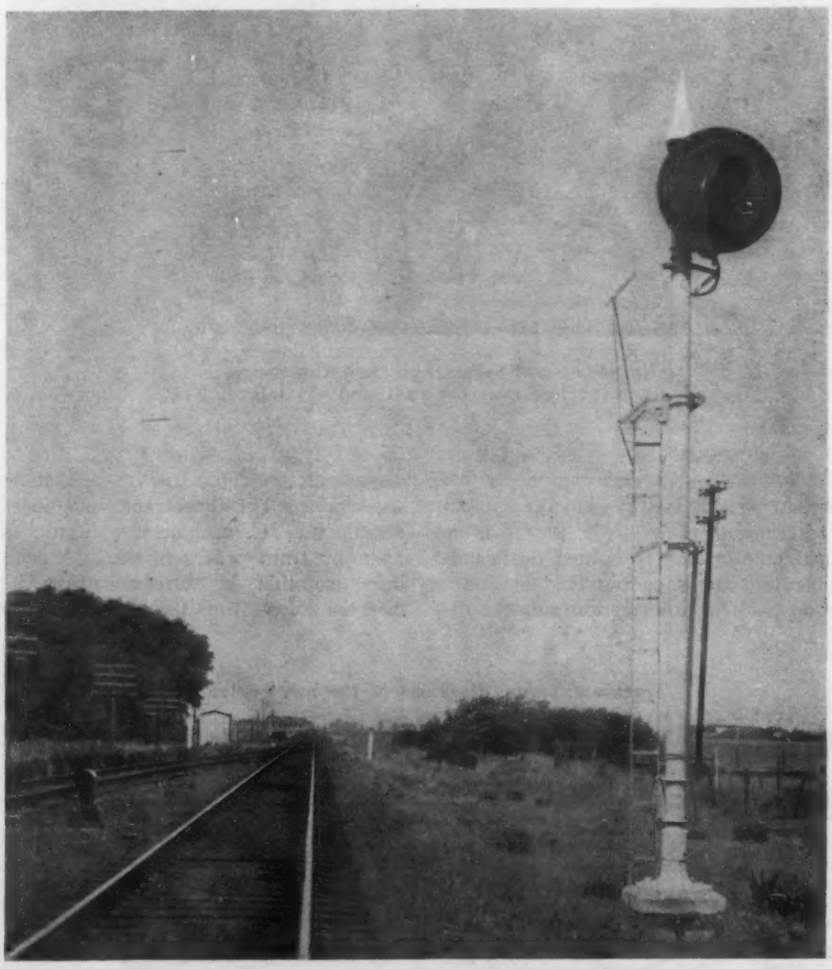
By W. F. ZANE
Signal Engineer
Chicago, Burlington & Quincy

THE Chicago, Burlington & Quincy has installed centralized traffic control on a 131-mile subdivision between Hastings, Neb., and McCook, this being a portion of the through route between Chicago and Denver. With the exception of three short sections of single track, the Burlington has two or more main tracks westward from Chicago to Lincoln, 551 miles, and single track extends 483 miles between Lincoln and Denver. Centralized traffic control was installed on the 112 miles between Denver and Akron in 1937, and on 97 miles between Lincoln and Hastings in 1945. The latest project placed in service in 1946 between Hastings and McCook completes 228 miles of C. T. C. between Lincoln and McCook. When a future project is completed on the 143 miles between McCook and Akron, there will be 483 miles of C. T. C. between Lincoln and Denver.

The 1946 Project

The recently completed 1946 project starts at M. P. 158 at the west end of Hastings, known as Gaines, and extends to M. P. 289 near the west end of McCook. This entire 131 miles is controlled by one machine in the dispatcher's office at McCook, so that he has control of the entire subdivision including the main tracks through the terminal at McCook.

Between Hastings and Oxford Jct., 75 miles, the railroad crosses rolling prairie country. The grades are light, being in general less than 0.5 per cent. The ruling grade eastward is 0.5 per cent for 15 miles near Holdrege, and the ruling grade westward is 0.5 per cent for 10 miles near Holdrege. Between Oxford Jct. and McCook, the railroad follows up the valley of the Republican river at river grade, ranging about 0.2 per cent. In general, the curvature is light, and with very few exceptions does not exceed 1.0 degree. The railroad is well constructed, using 112-lb. rail with good ties and rock ballast.



Station leaving signals at west end of Arapahoe

Important Junction

At Oxford Junction, which is 56 miles east of McCook, there is a junction with the Burlington line extending to Kansas City and St. Louis. Therefore, the section between Oxford Junction and McCook handles the through traffic between Denver and St. Louis as well as the traffic between Denver and Chicago. Based on operations during the months of April, 1942; July, 1942; October, 1942, and January, 1943, there was an average of four Zephyr, 6.25 passenger, and 13.12 freight trains daily within this territory.

Layout of Sidings

The centralized traffic control construction included the installation of power switch machines at the junction switch at Oxford Junction, and at both ends of 17 single sidings including two at Holdrege and the one at McCook. Also the switch leading from the siding to the yard at the east end of McCook has a power machine. Thus, in all, the project includes 36 power switches. The capacities of these power operated sidings is 140 cars at Kenesaw, Heartwell, Minden, Axtell, Holdrege, Atlanta, Edison, Holbrook and Indianaola, with Funk 77 cars, second siding at Holdrege 85 cars, Mascot 77, Oxford 125, Arapahoe 77, Cambridge 135, Bartley 77 and McCook 125. At Holdrege Junction, 1.16 miles east of Holdrege, there is a junction with a secondary line; the hand-

throw switch at this junction is equipped with an electric lock, and signals under the control of the dispatcher were also installed to authorize train movements through this junction.

Electric locks were installed at the hand-throw switch stands at both ends of four outlying short sidings which are used only by the local freight. Also electric locks were installed at the main-line switches leading to house tracks and spurs, so that a total of 34 electric locks were included in the project. Five of these locks, located in the layout at McCook, are controlled by levers in the C. T. C. machine, and the remaining 29 locks are controlled automatically.

When changing over to centralized traffic control, new searchlight signals were installed at the switches for authorizing train movements. The signal for authorizing a train to enter a siding has a second signal unit, to display red normally, or yellow under a red to enter the siding. The leave-siding signals are the searchlight type and display three aspects; the yellow being displayed when the switch is lined for a train to depart and one automatic block is clear; or green when two or more blocks are clear. The intermediate automatic block signals, previously in service, are of the color-light type, and these were retained in service, being relocated as required for proper braking distance and to fit into the new C. T. C. system.

Hold-Out Signals

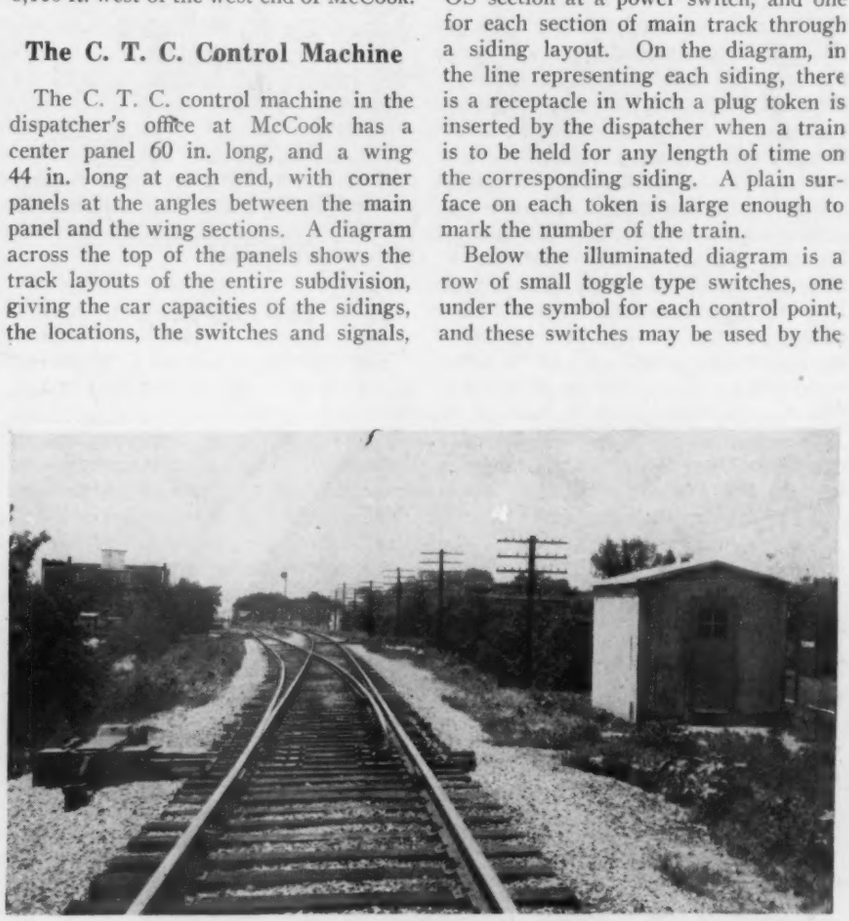
In order that switching moves may be made on the main track at McCook, without preventing trains from moving from the next station toward McCook, special C. T. C. control is provided for the two signals at the outlying intermediate location signals 14L and 14R, 4,100 ft. east of the east switch at McCook. These signals normally indicate Stop. A westbound train can be advanced from Indianaola toward signal 14L while switching moves are under way at the east end of McCook. In the meantime, as soon as the switching moves clear the main track, the dispatcher can clear signal 14L so that the road train can proceed on to McCook without stopping. Considered from another viewpoint, the provision of the eastward C. T. C. signal 14R establishes the territory between this signal and signal 12L, within which switching can be done independently of the remainder of the station-to-station block. A similar double location of outlying C. T. C. hold-out signals 2L and 2R are located 3,100 ft. west of the west end of McCook.

The C. T. C. Control Machine

The C. T. C. control machine in the dispatcher's office at McCook has a center panel 60 in. long, and a wing 44 in. long at each end, with corner panels at the angles between the main panel and the wing sections. A diagram across the top of the panels shows the track layouts of the entire subdivision, giving the car capacities of the sidings, the locations, the switches and signals, as well as other information for the dispatcher. Below each of the symbols representing each field station is an opal lamp which is lighted during the time the corresponding field station is coding. This information aids the dispatcher to check quickly that the stations are indicating properly.

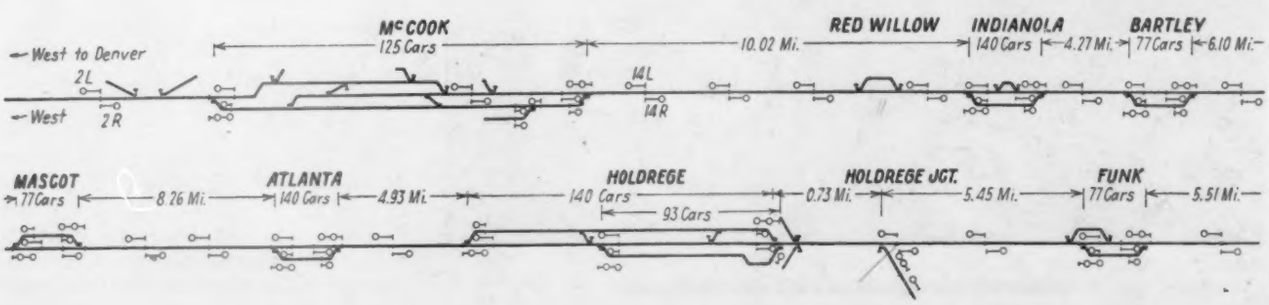
Below this row of opal lamps is the conventional illuminated track and signal diagram, including the lamps for repeating track occupancy. There is a total of 99 of these lamps, at least two and sometimes three for the sections of main track between sidings, one for each OS section at a power switch, and one for each section of main track through a siding layout. On the diagram, in the line representing each siding, there is a receptacle in which a plug token is inserted by the dispatcher when a train is to be held for any length of time on the corresponding siding. A plain surface on each token is large enough to mark the number of the train.

Below the illuminated diagram is a row of small toggle type switches, one under the symbol for each control point, and these switches may be used by the dispatcher to cut out the OS bells if he so desires. The dispatcher who operates the C. T. C. machine, also dispatches train by train orders on some branch lines, so that his attention may be directed away from the C. T. C. ma-



The power switch machine and the concrete instrument house at the east end of Oxford, Neb.

Track and signal diagrams of the new centralized traffic control



chine for some time. If two trains 50 to 60 miles apart are proceeding toward each other, it is too early to establish a meeting point. The dispatcher can throw the toggle switches to cut in the OS annunciator bells for certain field locations and he can then turn to other work to be recalled when one of the trains reaches one of the said OS points as indicated by an annunciator bell. Thus the C. T. C. board will take care of itself, and call the dispatcher in plenty of time before he needs to establish new line ups. This is the purpose for these special individual OS annunciator cut-out toggle switches on the board.

New Type Train Graph

The control machine includes a pen-type automatic train graph, a new feature of which is an extra pen which indicates when the supply of ink has lowered to the point that it should be replenished. Fifty-nine pens record operation of signals, and 30 pens record occupancy of OS track sections. As applying to the same corresponding field location, a signal pen is operated to repeat the fact that a signal has cleared, and the OS pen for the same field station is operated when the train occupies the OS section at that same field station. Thus the chart shows how long the signal was cleared prior to the arrival of the train. If the record lacks a continuous line to show that the signal was clear, while at the same time showing that the OS section was occupied, this would indicate that the train had passed a red signal.

Coded Carrier System

The C. T. C. line coding equipment is the General Railway Signal Company Type-K, Class-M system using two line wires from the control office at McCook to the east end of the project. By means of link carrier equipment, the 131 miles is cut into two independent operating sections, each of which has code sending and receiving apparatus at the control station which operates independent of the other, and, therefore, simultaneous operation is available.

In the first section of 55 miles between McCook and the east switch at Oxford, the control of semi-automatic signals and power switches at 18 field locations, as well as the return of indications, is accomplished by conventional d. c. code impulses on the two line wires. Also these two wires between McCook and Oxford handle 20.3-kilocycle carrier codes from the office at McCook to the field station at the east end of Oxford, at which point these carrier impulses are converted to conventional d. c. impulses and are applied to the two line wires to the east for the control of semi-automatic signals and power switches at 20 field stations in the 75 miles between Oxford and Hastings. Similarly, indications from these field stations are handled on the line wires by conventional d. c. impulses to the east end of Oxford where they are converted to 16.0-kilocycle carrier impulses and transmitted to the office at McCook, over the same wires that handle the conventional d. c. codes for the section between Oxford and McCook. Interference between the conventional d. c. codes and the high-frequency carrier codes is prevented by a filter in the office at McCook and by choke units at the field stations between McCook and Oxford. The carrier transmitter and receiver equipment at McCook and at Oxford are in duplicate, one complete set normally being on standby, with provisions for change over to the spare equipment. The carrier apparatus is operated from 110-volt a. c. which is supplied by an inverter in the event of power outage.

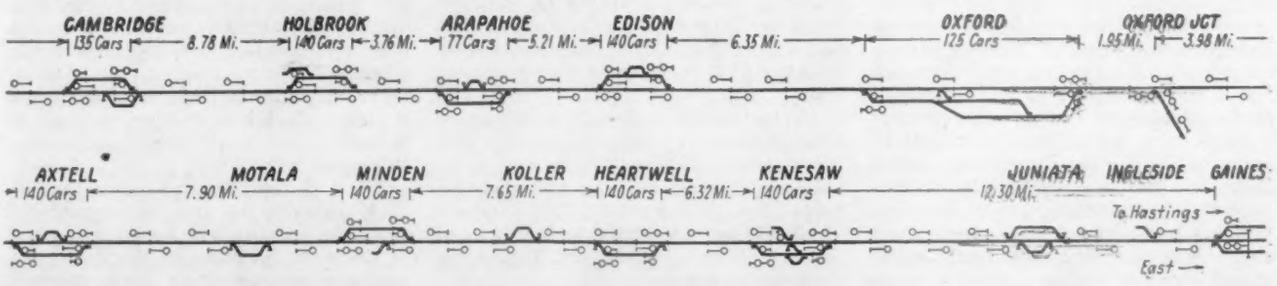
This C. T. C. installation was engineered and installed by the Burlington signal forces, the major items such as power switch machines, new signals, the coding apparatus, link carrier equipment and C. T. C. control machine being furnished by the General Railway Signal Company.

Control machine in dispatcher's office

RAILWAY BARGES RECONVERTED.—A reminder that the railroad car float played an important role in the invasion of Europe came recently with announcement by Bethlehem Steel Company's 27th Street yard in Brooklyn, N. Y., that it had completed reconversion of the New York, New Haven & Hartford's float No. 66.

Brought to light was the fact that approximately 70 of these floats, 59 of which normally were employed in shuttling freight within New York Harbor, had been "enlisted" early in 1944 to support the invasion of Normandy and the subsequent attack upon Nazi Europe.

territory on 131 miles between Hastings (Gaines) and McCook



GENERAL NEWS

Ticket Buying Plan Under Consideration

Railroads conducting poll of 20,000 business men on credit scheme

A new plan for the purchase of railroad tickets is expected to result from a poll of more than 20,000 business firms, being conducted by the Railroad Passenger Interterritorial Committee, H. W. Siddall, chairman of the Transcontinental and Western Passenger Associations and chairman of the committee, said at a press conference in Chicago on September 9. The poll is being conducted to determine which of three proposals will best suit the needs of business firms and their representatives.

"Our purpose is to simplify the purchase of tickets by eliminating the 'cash-and-carry' aspects of ticket buying," Mr. Siddall said. "The present system works very well for individual travelers, but we believe a more convenient plan can be worked out for business travel. Any of the proposed plans will make it unnecessary for the traveler to pay cash for his railroad transportation."

No Deposit—Mr. Siddall explained that the plan, or plans if more than one is adopted, will be placed in service about the first of the year and that they will be applicable over rail lines throughout the United States. He emphasized that no guarantee of a minimum amount of travel is contemplated as a condition of the acceptance of any of the plans that may be adopted, and that, unlike the plan now in effect by another transportation agency, no deposit will be required of any firm making use of the plan. Mr. Siddall also stated that railroad ticket forms were being made the subject of study by a group of ticket experts with the object of simplifying present tickets.

An outline of the three ticket payment plans is as follows:

Plan A—The traveler accredited by a business firm carries an identification card which bears a plate similar to department store credit plates. When he purchases tickets, the ticket agent imprints the plate upon a check or draft form, and the traveler signs it. It then clears through normal commercial credit channels without charge.

Plan B—The traveler carries a supply of checks similar to conventional travelers checks. When issued, these are signed by a company officer and the traveler. When tickets are purchased, the traveler countersigns the checks, which provides identification and protection against forgery. These checks also clear through normal banking channels without charge.

Plan C—This plan operates through the Commercial Travel Credit System of Chicago, an organization in which the railroads have no interest. The traveler carries a block of unsigned drafts and an identification card. When tickets are purchased, they are paid for with one of the drafts made out and signed by the traveler. The ticket agent confirms signature by comparison with identification card. The Commercial Travel Credit System pays the railroads and bills participating companies every ten days at the rate of one per cent of the amount actually used.

Southern & Southwestern Rwy. Club to Meet Sept. 19

Engine failures will be the subject of a paper presented at the first fall meeting of the Southern & Southwestern Railway Club on September 19 at the Ansley Hotel, Atlanta, Ga. James Grant, superintendent motive power, Atlantic Coast Line, Waycross, Ga., will deliver the principal paper, and supplementary papers will be presented by representatives of the Southern, Atlanta & West Point, Central of Georgia and the Seaboard Air Line.

At the following meeting of the club on November 21, a paper on motive power developments will be presented by A. H. Candee, consulting transportation engineer, Westinghouse Electric Corporation, East Pittsburgh, Pa. At that time Maj. Gen. C. R. Gray, Jr., vice president, Chicago & North Western, Chicago, and former director of the Military Railway Service, European Theatre, will also present a paper on a subject to be announced later.

N. C. & St. L. Announces Nashville-Memphis Streamliner

A new, streamlined, 6-car deluxe coach train will be placed in service between Nashville, Tenn., and Memphis late this year by the Nashville, Chattanooga & St. Louis. The new train, to be known as the "City of Memphis," will consist of one mail-baggage car, one combination coach-lounge-dinette car for colored passengers, one dining-tavern car, two coaches and a coach-lounge observation car. A public address system for use in announcing stations and meal services and for calling attention to points of interest along the road, as well as for broadcasting radio programs, will be a feature of the new blue and gray streamliner.

The tentative schedule calls for departure from Memphis at 8:30 a. m., and arrival at Nashville at 1:30 p. m., 1 hr. 50 min. faster than the existing morning train between these cities. Westward the "City of Memphis" will leave Nashville at 3 p. m., and arrive in Memphis at 8 p. m., 2 hr. faster than the present train.

Norris Says Iron Horse Requires Hay

Public can't get service it must have unless earnings will attract investors

"During the recent coal strike, when railroad service was curtailed, and during the railroad strike, when the nation was paralyzed, did any agency of transportation offer to fill the railroads' shoes?"—such was the question propounded by E. E. Norris, president of the Southern, in a September 12 address to the North Carolina Press Association at Asheville. "The editor of the Memphis Commercial Appeal," said Mr. Norris, "answered that one on May 9 when he wrote—

'Etched against the dark background of the coal strike, a picture is beginning to appear. Its outlines faint at first, it daily becomes more distinct as the situation becomes more serious. It is a picture of an industry; one often maligned and usually taken for granted. It is a picture of the American railroad.

'Railroad service has been so dependable that most people had ceased to consider it a service, and thought of it as one of the rights of life—as air and water. When the pinch came, through no fault of the carriers, everyone felt it, either directly or indirectly.

'When the O. D. T. order was issued the question arose as to other forms of transportation. Those in authority with truck lines serving Memphis admitted their inability to ease the situation. Proponents of air freight, so recently much in evidence, have remained significantly silent. The barge lines have been equally quiet.

'All of which adds up to force a conclusion long since reached by most persons who have given the situation serious thought—that the railroads form a basic transportation system of the nation. All other systems are subsidiary.'

"When we apply reason to transportation, we inevitably conclude that without railroads we could not have become the greatest, most prosperous, nation the world has ever known. We inevitably conclude, also, that our nation cannot continue to grow and prosper, or even survive, without adequate dependable, efficient, low-cost railroad transportation. It is the keystone of our entire economy. And it is still indispensable in peacetime, and vital to national defense in time of war.

"Most of the American people have already reasoned that out. In a recent poll of public opinion, they were asked which is the most important of the four transportation systems—truck lines, railroads,

river and canal boats, or airplanes. Three-fourths, or 75 per cent, replied that railroads are the most important. The people are also overwhelmingly in favor of private operation.

"They know that railroads are the backbone of our transportation system. They don't want expensive, inefficient government operation. They do want adequate rail transportation with the efficiency and economy of private operation. But, unfortunately, unless the people soon learn the 'facts of life' about the transportation industry, they're going to have either inefficient, expensive government ownership or the inadequate railroad service that results when government unreasonably hamstrings and discourages private ownership and operation.

"If the faithful Iron Horse could speak, he would doubtless say that his most critical need at the moment is more take-home 'hay.' He is literally being starved, financially, because what he gets for what he does isn't enough to cover the cost of providing the service—to say nothing of improving or bettering it. For the most part, this is due to the fact that the cost of railroad wages, materials and supplies—over which the railroads have no control—has gone up about 150 per cent during the past 25 years, while freight rates and passenger fares—over which the railroads also have no control—are lower by 26 and 39 per cent, respectively, than they were a quarter century ago.

"In the first half of this year alone, railroad operating expenses were increased $900 million annually, due to increases in wages, payroll taxes, and the cost of materials, supplies and fuel. Furthermore, the cost of materials and supplies has continued to rise. In addition, President Truman recently added an $85 million payroll tax item to annual railroad expenses when he signed the Crosser Bill, which makes far-reaching, unjustifiable and inexplicable additions to the present generous railroad retirement and unemployment insurance.

"If you want to know what it is all adding up to, take a look at the railroads' financial statement for the first seven months of this year. You'll find that the railroads, as a whole, had an estimated deficit of more than $42 million. You'll find, too, that in the same period 62 Class I railroads, including 11 in the South, failed to earn interest and rentals. And that's only the beginning—the real shock will come at the end of this year when the 12-months' figures are available.

"In these circumstances, how can railroads stay in business as a taxpaying, privately-owned industry? How can they rehabilitate their war-torn plant? How can they improve and modernize their equipment and facilities? How, indeed, can they even continue to give the kind of service they are now giving? They can't! Not unless they can charge enough for their services to cover expenses, with something left over for the investors who put up the money that makes improvements and betterments possible.

"Inadequate revenues are the real and *immediate threat* to the ability of the railroads to provide adequate and efficient service—and to be ready at all times to handle the peak loads of peace or war. The *long-range threat* to good, privately-operated railroad service lies in the government's investment of huge sums in transportation facilities which our competitors use without paying adequate user charges."

Freight Car Loadings

Loadings of revenue freight for the week ended September 7 totaled 794,483 cars, the Association of American Railroads announced on September 12. This was a decrease of 113,957, or 12.5 per cent, under the previous week which included the Labor Day holiday; an increase of 64,629, or 8.9 per cent, above the corresponding week last year, and a decrease of 30,683, or 3.7 per cent, under the comparable 1944 week.

Loading of revenue freight for the week ended August 31 totaled 908,440 cars, and the summary for that week as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For the Week Ended Saturday, August 31			
District	1946	1945	1944
Eastern	173,005	157,070	166,463
Allegheny	201,221	181,015	199,371
Pocahontas	66,361	54,992	56,060
Southern	131,345	119,241	120,894
Northwestern	135,044	143,856	143,631
Central Western	138,570	141,428	138,484
Southwestern	62,894	62,740	72,698
Total Western Districts	336,508	348,024	354,813
Total All Roads	908,440	860,342	897,603
Commodities:			
Grain and grain products	48,068	66,255	47,862
Livestock	15,219	17,455	16,840
Coal	190,120	179,264	173,638
Coke	14,605	12,411	13,851
Forest products	51,501	45,282	47,423
Ore	65,549	70,959	76,219
Merchandise l.c.l.	123,425	105,114	109,566
Miscellaneous	399,953	363,602	412,204
August 31	908,440	860,342	897,603
August 24	884,957	853,426	904,871
August 17	887,570	652,832	886,623
August 10	899,084	870,002	895,181
August 3	898,395	863,910	889,594
Cumulative total, 35 weeks	26,901,409	28,758,342	29,218,903

In Canada.—Loading of revenue freight for the week ended August 31 totaled 78,711 cars as compared with 5,242 cars for the previous week and 75,843 cars for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

Totals for Canada:	Revenue Freight Loaded	Total Cars Rec'd from Connections
August 31, 1946	78,711	36,989
Sept. 1, 1945	75,843	32,397
Cumulative Totals for Canada:		
August 31, 1946	2,362,179	1,190,781
Sept. 1, 1945	2,403,177	1,263,879

Twenty-ninth Annual Meeting of Master Boiler Makers

The Master Boiler Makers' Association held its twenty-ninth annual meeting at the Hotel Sherman, Chicago, on September 4-6 during which about 260 members registered for the five sessions. President Myron C. France presided at the meeting and was assisted by Frank A. Longo, vice-president and chairman of the executive board, and A. F. Stiglmeier, secretary-treasurer.

At a business meeting held during the concluding session the officers elected for the next year were: President, Frank A. Longo, general boiler inspector, Southern Pacific; vice-president and chairman of the executive board, Sigurd Christopherson, supervisor of boiler inspection and maintenance, New York, New Haven & Hartford; secretary-treasurer, Albert F. Stiglmeier, general supervisor, boilers and welding, New York Central. New members elected to the executive board for three-year terms were H. C. Haviland, supervisor of boilers, N. Y. C.; W. H. Keiler, locomotive inspector, Bureau of Locomotive Inspection, Interstate Commerce Commission; and E. E. Owens, general boiler inspector, Union Pacific. To complete the unexpired term of Frank Yochem, retired, the association elected John P. Powers to the executive board for one year and E. H. Heidel, general boiler foreman, Chicago, Milwaukee, St. Paul & Pacific, as secretary of the board.

The advisory board for the following year consists of A. K. Galloway, general superintendent motive power and equipment, Baltimore & Ohio; F. K. Mitchell, general superintendent motive power and rolling stock, N. Y. C.; E. R. Battley, chief of motive power and car equipment, Canadian National; B. M. Brown, general superintendent motive power, Sou. Pac.; and H. H. Urbach, mechanical assistant to vice-president, Chicago, Burlington & Quincy.

The "Pere Marquettes"

In an article describing the new twin passenger trains recently placed in service by the Pere Marquette which appeared in the September 7, 1946, issue of *Railway Age*, the axle-driven Genemotors were described as having Spicer drives. This was an error. The Genemotors are driven by V-belt-gear drives, each using six 2-in. Dayton V-belts.

Locomotive Maintenance Men in Three-Day Session at Chicago

During the three-day meeting at the Hotel Sherman, Chicago, September 4-6 approximately 250 members of the Locomotive Maintenance Officers' Association registered at the meetings out of a total association membership of over 600.

The following officers were elected to serve for the coming year: president, S. O. Rentschler, superintendent motive power, Elgin, Joliet & Eastern; first vice-president, C. D. Allen, master mechanic, Chesapeake & Ohio; second vice-president, J. W. Hawthorne,, superintendent motive power, Central of Georgia; third vice-president, G. W. Bennett, master mechanic, Chicago & Eastern Illinois; secretary-treasurer, C. M. Lipscomb, assistant to production engineer, Missouri Pacific.

The executive committee for the coming year will be composed of C. D. Allen (chairman); C. E. Bell, master mechanic, Illinois Central; G. A. Silva, superintendent locomotive maintenance, Boston & Maine; F. R. Hosack, assistant chief mechanical officer, Missouri Pacific; J. P. Morris, general assistant (mechanical), Atchison, Topeka & Santa Fe; A. Malmgren, assistant superintendent, St. Louis-San Francisco; and W. H. Sagstetter, chief mechanical officer, Denver & Rio Grande Western.

The Association's advisory board will be composed of O. A. Garber, chief mechanical officer, Missouri Pacific; F. K. Mitchell, general superintendent motive power and rolling stock, New York Central

System; C. B. Hitch, chief mechanical officer, Chesapeake & Ohio; J. E. Goodwin, chief mechanical officer, Chicago & North Western, and D. J. Sheehan, superintendent motive power, Chicago & Eastern Illinois.

Allegheny Advisory Board Meets September 19

William White, president of the Delaware, Lackawanna & Western, will be the principal speaker at the fifty-fifth regular meeting of the Allegheny Regional Advisory Board, to be held in the Hotel Ohio, Youngstown, Ohio, on September 19.

W. E. Callahan, manager, Open Top Car section, Car Service division, Association of American Railroads, will give an outline of the national transportation situation and the present freight car supply. Presiding officer of the general meeting will be F. M. Russell, general chairman of the Allegheny Board, and traffic manager of the General Fireproofing Co., Youngstown.

Emergency situations requiring immediate action by the railroads and the users of transportation will be highlighted at the meeting. Other features will be the forecast of carloadings of various commodities as estimated by the shippers, and tentative plans for holding a Glass and Ceramics Clinic in Pittsburgh, Pa., in the near future to consider packaging of glassware and ceramic products.

The Car Efficiency committee, Freight Claim Prevention and L. C. L. committee, and the Executive and Railroad Contact committees, will hold their meetings on the previous day, September 18, at the Youngstown Country Club.

C. D. O. A. Meets for First Time Since 1941

The first annual meeting of the Car Department Officers' Association held since 1941 took place at the Hotel Sherman, Chicago, on September 4-6. This is one of the four coordinated associations which participated in the joint session addressed by W. G. Vollmer, president, Texas & Pacific, on Wednesday September 4, as reported elsewhere in this issue.

At the close of the meeting, the following officers were elected for the ensuing year: President—G. R. Andersen, superintendent car department, Chicago & North Western; vice-presidents—D. J. Sheehan, superintendent motive power, Chicago & Eastern Illinois; I. M. Peters, secretary and superintendent, Crystal Car Lines; P. J. Hogan, supervisor car inspection and maintenance, New York, New Haven & Hartford; and G. H. Wells, assistant to superintendent car department, Northern Pacific; secretary-treasurer—F. H. Stremmel, assistant to secretary, A. A. R., Mechanical Division.

The board of directors includes the following officers, the last four of whom were newly elected at the annual meeting: F. E. Cheshire, chief mechanical officer, Chicago, Indianapolis & Louisville; J. S. Acworth, assistant vice-president, General American Transportation Corporation; J. A. Deppe, superintendent car department, Chicago, Milwaukee, St. Paul & Pacific; J. A. MacLean, vice-president, MacLean-Fogg Lock Nut Company; L. H. Gillick, sales manager, Vapor Car Heating Company; H. H. Golden, supervisor, A. A. R., interchange, Louisville & Nashville; J. E. Keegan, chief car inspector, Pennsylvania; G. E. McCoy, assistant chief of car equipment, Canadian National; J. P. Morris, general mechanical assistant, Atchison, Topeka & Santa Fe; C. J. Nelson, superintendent of interchange, Chicago Car Interchange Bureau; J. J. Root, Jr., vice-president, Union Tank Car Company; C. E. Strain, superintendent car department, Pere Marquette; H. H. Urbach, mechanical assistant to executive vice-president, Chicago, Burlington & Quincy; W. P. Elliott, general car foreman, Terminal Railroad Association of St. Louis; F. Cebulla, master car builder, Great Northern; H. A. Harris, master car builder, Alton; J. E. Goodwin, chief mechanical officer, Chicago & North Western; R. Schey, superintendent car department, New York, Chicago & St. Louis.

Traveling Engineers' Hold Annual Meeting

The Railway Fuel and Traveling Engineers' Association held its annual meeting at the Hotel Sherman, Chicago, on September 4, 5, and 6, participating in the joint activities of the so-called Coordinated Mechanical Associations which included an exhibit of the Allied Railway Supply Association.

The following officers were elected to serve during 1946-47: President—W. C. Shove, general road foreman of engines, New York, New Haven & Hartford, New Haven, Conn. Vice-presidents—G. B. Curtis, road foreman of engines, Richmond, Fredericksburg & Potomac, Richmond, Va., and S. A. Dickson, supervisor fuel economy, Alton, Bloomington, Ill. Secretary-treasurer—T. Duff Smith. Executive Committee—C. E. Alexander, road foreman of engines, Illinois Terminal Railroad, Alton, Ill.; G. E. Anderson, general fuel supervisor, Great Northern, St. Paul, Minn.; F. A. Cutter, road foreman of engines, Chicago & North Western, Milwaukee, Wis.; R. D. Nicholson, road foreman of engines, New York, New Haven & Hartford, West Haven, Conn.; W. D. Quarles, superintendent Diesel performance, Atlantic Coast Line, Wilmington, N. C.; W. E. Sample, assistant superintendent fuel conservation, Baltimore & Ohio, Baltimore, Md.; E. G. Sanders, fuel conservation engineer, Atchison, Topeka & Santa Fe, Topeka, Kan., and Glenn Warner, fuel supervisor, Pere Marquette, Detroit, Mich.

T. P. & W. Receivership Order Voided

The United States Circuit Court of Appeals for the Seventh Circuit ruled, on September 4, that the action, on June 6, of Federal District Judge J. Leroy Adair in appointing Fred Windish as receiver of the strike-bound Toledo, Peoria & Western (*Railway Age*, June 15) was improper, and that instead it should have granted the company's request for an injunction against any interference with the operation of the road by the striking unions, the Brotherhood of Locomotive Firemen & Enginemen and the Brotherhood of Railroad Trainmen. The suit for appointment of a receiver was brought by a group of shippers located along the line. In reaching its decision the appeals court said:

"Every equity receiver is appointed for the purpose of either preserving, liquidating or operating the property involved. It is admitted that this appointment was not made for the purpose of liquidation, nor was it made for the purpose of preserving the property, for plaintiffs had no interest in it, either legal or equitable, nor did they have a claim of any kind against it.

"It is clear that the ultimate aim of the action was the appointment of a receiver for the sole purpose of operating the railroad, without any limitation as to time, and not being ancillary to other equitable or legal relief sought. Under these circumstances we think the decree was improper."

Concerning the refusal of the District Court to grant the road injunctive relief, the Court of Appeals in its opinion found that:

"Appellant (T. P. & W.) offered to arbitrate under an arbitrator appointed either by the senior federal judge of that district, or the trial judge, or the senior circuit judge of this circuit, or by the Illinois Commerce Commission, and finally appellant proposed to arbitrate their two remaining differences, or any others which might arise, under the terms of the Railway Labor Act. The Brotherhoods rejected all of these proposals, notwithstanding their answer denying the allegation in plaintiffs' petition that the railroad could not be placed in operation to perform its duties as a common carrier unless a receiver was appointed.

"Under these circumstances which are undisputed, we think it cannot be said that appellant failed either to negotiate, mediate or arbitrate as contemplated by the former decision in this case by the Supreme Court."

Allied Railway Supply Assn. Elects Officers

The Allied Railway Supply Association organized an exhibit at the Hotel Sherman, Chicago, in connection with the meetings of the four Coordinated Mechanical Associations on September 4, 5 and 6, in which 105 companies participated. At a meeting held during the exhibit the following officers were elected for the ensuing year: President—M. K. Tate, Lima Locomotive Works, Inc., Washington, D. C.; first vice-president—E. H. Weaver, Westinghouse Air Brake Company, Cleveland, Ohio; second vice-president—B. S. Johnson, W. H. Miner, Inc., Chicago; third vice-president—Walter Sanders, general manager, Railway Sales Division, Timken Roller Bearing Company, Canton, Ohio; secretary—J. F. Gettrust, Ashton Valve Company, Chicago; treasurer-C. F. Weil, American Brake Shoe Company, Chicago.

Club Meeting

The Southern & Southwestern Railway Club has scheduled a meeting September 19 at the Ansley Hotel roof garden, Atlanta, Ga., at 10 a.m. The program will include a discussion of "Engine Failures," by James Grant, superintendent motive power of the Atlantic Coast Line, Waycross, Ga., plus additional papers by representatives of the Seaboard Air Line, Atlanta & West Point, and the Nashville, Chattanooga & St. Louis.

With the Government Agencies

Steel Scrap Not to Get a Price Change

Porter says present ceilings will continue for at least six more months

In a move which he described as his "final decision" to end the long controversy over ceiling prices that has virtually halted trading in scrap, Price Administrator Paul A. Porter this week made public a six-point scrap program that will leave current price ceilings, except for cast iron scrap, unchanged for at least the next six months. At the same time, Civilian Production Administrator John D. Small disclosed plans to speed up scrap deliveries to steel mills by instituting strict inventory controls.

Mr. Porter's action followed by several weeks an Office of Price Administration announcement of July 27, which, as reported in *Railway Age*, August 3, page 199, stated that no increases in current ceiling prices for iron and steel scrap will be granted "in the forseeable future." The July 27 announcement also noted that the O. P. A. considered as "adequate" the June 30 ceilings under which scrap prices were brought again when the price-control agency was revived on July 25.

According to this week's joint C. P. A.-O. P. A. statement, new C. P. A. regulations to implement the program will be designed to bring about full scale resumption of normal scrap circulation. It further indicated that the new C. P. A. regulations will require processors of scrap to balance shipments with receipts.

"The incentive increase for prepared grades of cast iron scrap, comprising 10 to 15 per cent of the total iron and steel scrap supply, which will average slightly less than $4 per gross ton, was the only price increase provided in the program and Mr. Porter made it clear that no general increase in steel scrap prices may be expected," the statement said.

The new six-point program, designed to "halt hoarding by speculators and assure the maximum flow of iron and steel scrap to industry through normal channels," will (1) establish ceiling prices for the first time on sales of unprepared scrap to scrap dealers from industrial or government sources; (2) reduce ceiling prices on sales of unprepared scrap to consumers or their brokers 50 cents a ton, which gives dealers a differential to insure the flow of scrap through this normal channel; (3) prohibit "tie-in" sales—the trading of other scarce materials, such as pig iron and new steel, for iron and steel scrap; (4) prohibit sale of electric furnace and foundry grades of scrap at premium prices for use in basic open hearth furnaces unless the scrap has been allocated by the C. P. A.; (5) provide incentive increases ranging from $2.50 to $7 per gross ton in the maximum prices for prepared grades of cast iron scrap, thus encouraging the collection of this type of scrap, which may be used as a substitute for pig iron, now in short supply; and (6) increase O. P. A.'s staff of graders assigned to scrap and launch a drive for criminal prosecution of violators of O. P. A. scrap regulations.

P. & D. Service Pre-Hearing Conference September 20

The pre-hearing conference in the No. 29555 and No. MC-C-542 proceedings, pertaining to pick-up and delivery services by railroads and motor carriers, respectively, which was to be held at the Washington, D. C., offices of the Interstate Commerce Commission on September 16, has been postponed to September 20. Commissioner Rogers will preside.

The commission said that in the event the hearing in the Ex Parte No. 162 proceedings, now assigned for September 17, is not completed by September 20, the pre-hearing conference in the pick-up and delivery proceedings will still be held on September 20, starting at 8 p. m.

Wartime Practices of Railroads to Be Probed, Mead Says

A congressional probe into allegations of wartime profiteering practices on the part of the railroads is on the future program of the Senate War Investigating Committee, according to its chairman, Senator Mead, Democrat of New York. Senator Mead told a Washington, D. C., press conference on September 9 that the committee had received a "great many requests" to investigate the "war profits" of all types of transportation, and that in some cases inquiries were already "in progress."

Pointing out that full investigations "take time," Senator Mead disclosed that Bureau of Internal Revenue and General Accounting Office "experts" already have been assigned to assist the committee with respect to tax returns and other financial aspects of its probes. He also acknowledged the receipt of correspondence from Senator Taylor, Idaho Democrat, who has asked that the committee conduct an inquiry into the railroads' wartime transactions and "broaden the scope of its activity in order to discover what railroad men, if any, are responsible for the policies of the Budget of the Bureau with respect to railroad freight rates." (See *Railway Age* of August 31, page 374 and August 10, page 236).

Senator Mead also announced that because of his approaching campaign for the governorship of New York he intends to resign in the near future as chairman of the war investigating committee. He indicated that his successor would be either Senator Connally of Texas or Senator Kilgore, of West Virginia, who are the committee's ranking Democratic members.

Would Grant Pullman Conductors' Wage Plea

Emergency board rationalizes its way out, but dissenter sees break in ceiling

Despite the fact that Pullman conductors have had a basic work month of 225 hours since September 1, 1945, when it was reduced from 240 hours, the Presidential emergency board, which investigated the dispute involving the application to those employees of the recent 18½-cents-per-hour wage increase, has recommended that the raise be converted into a monthly advance of $44.40 by the use of 240 instead of 225 as the hours factor in the calculation. The report, dated August 23, was made public by the White House on September 6.

The foregoing recommendation, which supports the position of the Order of Railway Conductors, drew a dissent from one of the three board members—Robert G. Simmons, chief justice of the Supreme Court of Nebraska, who contended that the 18½ cents should be multiplied by 225 hours to make the monthly increase $41.62½ as offered by the Pullman Company. Majority members of the board were Chairman I. L. Sharfman, chairman of the Department of Economics at the University of Michigan, and Walton H. Hamilton, professor of law at Yale Law School.

Pointing out that much Pullman-conductor service is paid for at the hourly rate, which is 1/225 of the monthly rate, Dissenter Simmons calculated that the effect of adopting the majority recommendation would be to award an hourly increase of 19.73 cents, 1.23 cents in excess of the 18½ cents approved in applicable stabilization orders. The latter are the general approval orders issued at the time of the wage awards by the chairman of the National Railway Labor Panel.

Unlocks Door to Inflation—"Through these general approval orders," Justice Simmons said, "the government of the United States has stated the top limits of wage increases in this industry as a part of its inflation prevention policy. To recommend the adoption of the wage increase asked by the Pullman conductors is to exceed the top limits fixed by the wage orders that are to be applied. To that extent it will encourage inflation by letting down a bit the controls there set up. But more serious than that, it unlocks the doors and furnishes a vehicle to be used in further tearing down the anti-inflation controls. . . . I recommend that the proposal of the Pullman Company should be accepted."

The dissenting member conceded that the $44.40-per-month increase would be applicable without question if the basic month

(*Continued on page 452*)

Lewis Union Flouts "Fact-Finding" Rule

Refuses to testify to board in L. I. dispute and calls it "farce"

Neither witnesses nor facts will be called to substantiate the demands for pay increases and 220 changes in working rules asked for 900 train service employees of the Long Island who are represented by District 50, United Mine Workers, A. F. L., Yelverton Cowherd, District 50's counsel, on September 10, told the 3-man fact-finding board appointed by President Truman to avert a threatened strike by the union on September 24. (See *Railway Age* for August 31, page 378.) The board members are Frank M. Swacker, chairman, of New York; Leverett Edwards, of Oklahoma City, Okla.; and H. Nathan Swaim, of Indianapolis, Ind., all attorneys. Hearings are being held in the United States Court House, New York.

Guy W. Knight, attorney for the Long Island, charged that the union's stand was "a most unusual type of proceeding" and was making the Railway Labor Act "useless and ridiculous." The committee cannot determine the facts of the case, he added, unless they are presented by both sides.

After the conclusion of the day's session, Mr. Cowherd, pointing out that either side can refuse to accept the findings of a fact-finding board, told reporters that it was not the policy of the union to take the initiative before a body which has no authority to establish a final pattern. The whole fact-finding board idea, he said, is the "worst farce of law and time" and the only reason the United Mine Workers are represented at this hearing is because the union is "just trying to avoid insulting the President of the United States."

Rejecting an offer by Mr. Swacker that the union accept the offices of the board for negotiation, Mr. Cowherd said the proceeding was an investigation and that the union would answer questions from the board and reply to statements by the railroad.

Mr. Knight stated it would be difficult for the railroad to present its case when it did not know how much time to allot to its witnesses or to discussion of the union's demands. Suggesting that the board set aside the amount of time it would need to reach a decision and then allot two-thirds of the remaining time to the railroad and one-third to the union Mr. Cowherd said the Long Island had been playing ,the "time gag, and it is a gag" since last February.

On September 9, the first day of the hearings, Mr. Knight told the board the union was trying to force a 73 per cent wage increase and 220 changes in working rules "to demonstrate to railroad employees that its services as a bargaining agent are more effective than those of other unions."

Pointing out that last May 1,500,000 workers on class I railroads throughout the nation had accepted an increase of 18½ cents an hour without changes in working rules in settling the national railroad strike, Mr. Knight contended that if District 50 should be successful in obtaining its demands there might be "a complete breakdown of that national settlement and ultimate disruption of the entire transportation system in this country."

District 50 refused the 18½ cent national settlement and is demanding $9.28 a day for ticket collectors and $8.39 for trainmen; a reduction in the basic day from 136 miles for steam service and 146 miles for electric service to 100 miles for each. The demands for changes in other working rules are on the general order of those demands made by the standard brotherhoods earlier this year, with additional advantages for employees engaged in "short turn-around" service, which characterizes most of the Long Island's operations. (See the *Railway Age* for March 23, page 641.)

As this issue went to press, E. L. Hofmann, superintendent of the Long Island, was discussing the effects which would result from the adoption of the working rules proposed by the union.

Car Service Orders

Provisions of Fourth Revised Service Order No. 180, which assesses super-demurrage charges on refrigerator cars, have been suspended by the Interstate Commerce Commission insofar as they would apply on refrigerator cars held at or short of ports for transshipment to vessels, and on such cars when reconsigned or diverted. The suspension, embodied in Amendment No. 7 to the order, is effective from September 8 to September 20; and it will provide relief with respect to cars caught in the maritime strike, such cars becoming subject to only normal demurrage charges.

In the same connection, the commission has issued General Permit No. 2 to Service Order No. 396 which requires reconsignment of refrigerator cars within 48 hrs. from the first 7 a.m. after arrival at a destination if through-rate arrangements are to apply. The general permit, effective until September 20 grants railroads permission to disregard entirely the provisions of the order insofar as it applies to the reconsignment at ports of refrigerator cars loaded with perishables which arrived at Atlantic, Gulf or Pacific ports on or after September 1.

Amendment No. 3 to Service Order 558 enlarges the California-Oregon origin territory from which the order authorizes railroads to furnish two or three refrigerator cars in lieu of each box car ordered for shipments of fruit and vegetable containers and box shooks. The territorial scope of the order is now from origins in California and in Oregon "on or south of a line extending from Bend through Eugene" to destinations in California.

Service Order No. 454-A suspended from September 11 until October 31 the provisions of Service Order No. 454, as amended, which had required the granting of preference in car supply and in delivery at ports to foreign relief shipments of food.

Expiration dates of three other service orders have been set back, the orders, extending amendments, and new expiration dates being as follows:

No. 112 (revised) which provides that no free time shall be allowed on refrigerator cars loaded

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Shows How 1946 Net Could Be $182 Million

I.C.C. bureau adds first half's results to six times the returns for July

Building a projection of 1946 railroad earnings out of the first half's results plus six times the returns for July, the latest "Monthly Comment" of the Interstate Commerce Commission's Bureau of Transport Economics and Statistics calculates the indicated 12-months net railway operating income of Class I line-haul roads at $530 million and the net income at $182 million. Net incomes of the past five years have ranged from 1942's $902 million to 1945's $447 million.

With respect to its use of six times the July returns to represent the last half's results, the bureau suggests that "in view of the carloading figures for August, it seems probable that the revenues for that month will exceed those of July." At the same time it recognizes that the first half's actual figures "include all federal income and excess profits tax credits accrued to date which are known to be large in the case of certain roads." Without these credits, the showing as to net income "would be considerably less favorable," it adds.

In the latter connection, the "Comment" had previously set up a table showing that the net income of $47,404,000 for the 12 months ended with July was the result of excess profits tax credits of $348,215,000 which more than offset the $300,811,000 deficit "before deduction of federal income taxes." Likewise did the tax credits build the net railway operating income for the same 12 months up from $70,466,000 to $418,681,000.

Travel Off 25 Per Cent—The bureau's usual analysis of the latest monthly financial reports noted that July's operating ratio of 80.4 per cent was up 11.4 percentage points from July, 1945. July freight revenues of the Class I roads on a daily basis were 11.9 per cent above June but 12.9 per cent below July, 1945. Passenger revenues were up 5.4 per cent from the previous month but 25.4 per cent below July, 1945. The July freight revenue index (based on the 1935-1939 monthly average as 100) was 191.2, compared to June's 182.3 and July, 1945's 226.9. The passenger revenue index was 320.9, compared to June's 314.5 and July, 1945's 430.4.

Reporting on the latest returns from Class I line-haul roads regarding capital expenditures for this year's first half and estimated outlays for the second half, the bureau notes that the combined actual and estimated expenditures for the year totaled $589.4 million as compared with $549.5 million reported as actual expenditures in 1945. For the first six months, the reporting roads listed total capital expenditures (gross) for additions and betterments in the amount of $218.5 million, including $100.7 million for road and $117.8 million for equipment. The estimates for the last half indicated a total outlay of $370.8 million, including $135.5 million for road and $235.3 million for equipment. It is noted that the

estimates "are incomplete, since five roads did not supply data on equipment although one of them furnished data on road."

Meanwhile, the bureau had given first place in the "Comment" to its discussion of "national income produced by Class I line-haul railways." There the percentage of the total national income produced by the Class I roads is found to have been showing a declining trend since 1919. The 1945 proportion is shown at 3.14 per cent as compared with 6.86 per cent in 1920. As used in the analysis, the total of national income produced by the Class I roads "includes the total of wages and salaries paid, and the earnings on capital, but excludes certain contributions to retirement reserves which are reported as part of income produced in the statistics of income published by the Departmetn of Commerce." Thus, it represents "roughly what the country pays to these railroads as a net figure."

1946 a "Minus Year"—An accompanying table and chart covering the 1919-1946 period shows for these roads the total national income produced, the total of wages and salaries paid, and the total "earnings on capital," i. e., interest, rent, cash dividends, and "business savings." The latter is the amount carried to surplus, a minus figure in 10 of the 28 years when the roads had to dip into surplus to make their interest, rent, and dividend payments. One of these "minus" years is 1946, its figures, which are estimates based on the first-quarter returns indicating a minus-$171-million entry in the "business savings" column. On the showing made by the table and chart, the bureau made this general comment:

"In good times, such as the 'Twenties and the World War II period, the earnings on capital rose rapidly. It is worth noting that in the earlier period wages and salaries showed practically no gain but that in the later one they followed closely the increase in the earnings on capital though with a slight lag. In periods of decreasing income, however, the wage and salary item has declined less rapidly than earnings on capital. In 1943 and 1944, while the wage and salary incomes were still rising and total income produced by the Class I roads was also increasing, the total earnings on capital began the abrupt decline which by 1946 carried these earnings so low as to afford a relatively narrow margin over rent and interest. It will be noted that this recent decline, though not quite as sharp as that of 1929-1932, is nonetheless one which bears a rather striking resemblance thereto."

Coal Up 74 Per Cent—Data presented on prices of fuel purchased by Class I roads compare the average cost during this year's first six months with those of the comparable 1940 period. The figures show that the average cost of coal per net ton purchased at the mines rose from $1.88 in 1940 to $2.97 in 1946 or 58 per cent. For other kinds of fuel the increases in average cost ranged from 6.2 per cent for electric current to 39.8 per cent for fuel oil.

Except for gasoline, the quantities of fuel purchased were considerably larger in the first six months of this year than in 1940. "Notwithstanding the prolonged coal strike," as the bureau puts it, "mine purchases of coal in the 1946 period were 20.4 per cent larger than in the earlier period." Diesel fuel purchases increased from 37.3 million gallons in the 1940 period to 258.6 million gallons in 1946 or 593.8 per cent. A table showing the distribution of cost by kinds of fuel indicates that in the first six months of 1940 coal accounted for 69.15 per cent of the total fuel cost as compared with 65.77 per cent in the same period of 1946. The Diesel fuel proportion rose from 1.3 per cent in the 1940 period to 5.35 per cent in 1946.

Increases in coal prices authorized by the Office of Price Administration effective June 21 are reflected in another table which compares average July prices since 1940. The July, 1946, average cost per net ton purchased at the mines is shown as $3.28 as compared with July, 1940's $1.88, an increase of 74 per cent. As compared with May, the bureau calculates that the July cost per ton was up 25 cents. It then makes this observation:

"If only the same quantity of coal should be purchased in the last half of 1946 as in the first half of the year, and the average price paid for this coal is approximately the same as the July, 1946, figure, the coal bill of Class I roads, including switching and terminal companies, will be about $17 million more than it was in the January-June period. Because of numerous labor disturbances as well as the long suspension of coal mining in the early months of 1946, it seems reasonable to expect that the quantity of coal purchased will be substantially larger in the last half than in the first half of 1946."

Recalling the August "Comment's" tabulation showing changes in the trend of freight service and passenger service net railway operating income over the past 10 years, the bureau this time makes a similar comparison of the traffic volume and the operating expenses by classes of service. The comparison, covering the 1936-1945 period, is made with index numbers on the basis of 1936 as 100. For the years 1937-1940, the traffic and expense indexes are in fairly close agreement for both classes of service. Thereafter, the index passenger-miles outran the index of passenger service expenses, being more than twice as large for the years 1944 and 1945.

For freight service, the indexes of ton-miles and freight service expenses show a much closer relationship during the war years. The ton-mile index reached a peak of 217 in 1944 when the expense index was 219. The 1945 figures were, respectively, 201 and 223, the latter being "restated" to exclude extraordinary charges for the accelerated amortization of defense projects. To the bureau these data indicate that "under the current rules governing the separation of operating expenses by class of service, large increases in the volume of traffic have much less effect on passenger service expenses than is the case in freight service."

Where Traffic Comes From—In a discussion of the 1945 freight commodity statistics by geographical areas, the bureau notes that 23 states in that year originated more carload freight than they terminated. Nineteen other states and the New England states as a whole terminated more than they originated. West Virginia with its coal traffic had the largest excess (501.6 per cent) in tons originated over tons terminated. Next in turn came Wyoming (361.2 per cent), Kentucky (255.4 per cent), Minnesota (197.8 per cent) and North Dakota (148.7 per cent). Coal was the principal commodity originating in the first two while iron ore led in Minnesota and wheat in North Dakota.

Coal was the principal commodity terminated in New England and in 15 of the 19 states which also terminated greater tonnages than they originated. Largest percentages of excess tonnage terminated over that originated were shown for New Jersey (253.6 per cent), New England (164.5 per cent), and Maryland (163 per cent). For the country as a whole, the excess of the tons originated over the tons terminated was 94,656,216 tons or 7.2 per cent of the tons terminated.

"This lack of balance," the bureau explains, "is brought about largely by exports of coal to Canada and delivery of coal to small connecting railroads in this country. The excess of coal originated over coal terminated was 78,123,343 tons or 20.3 per cent of the coal terminated. Iron ore reported as terminated was 59.1 per cent of that originated due primarily to the fact that under the present reporting method iron ore delivered at Lake Superior ports is reported as 'delivered to connections' and not as terminated, regardless of whether the ore actually goes by rail beyond the lower lake ports or is delivered by lake carrier directly to lake front furnaces. If iron ore and coal are excluded from the comparison, the total tons terminated would show an excess over the tons originated of 22,026,570 tons or only 2.6 per cent."

Freight Prospects—The usual discussion of the freight traffic outlook this time emphasizes that the estimates of loadings of grain and grain products made the Production and Marketing Administration of the Department of Agriculture for the forthcoming months "reflect car requirements rather than the actual number of cars that will be loaded, although some allowance has been made for the shortage of box cars." On this basis, the P. R. A. September estimate is 54,750 carloads of grain a week, 3,600 cars higher than the average weekly loadings in August and "only 0.7 per cent under actual high loadings of September, 1945." Average "requirements" in October and November are expected to be 56,500 and 55,000 cars per week, respectively, or 1.2 per cent above and 2.5 per cent below actual loadings in the corresponding months last year.

September livestock loadings are expected by P. M. A. to average 19,700 cars weekly, 3.2 per cent under September, 1945. In October and November, these loadings are expected to average about the same as last year—26,900 and 25,100 cars per week, respectively. The P. M. A. estimate for "perishable and semi-perishable" commodities normally moving in refrigerator cars is 197,600 cars for September, 3.5 per cent above last year. Of refrigerator car loadings generally, the bureau says they "continue heavy, but requirements are being met better than for other types of equipment."

The discussion of the open-top car situation says that coal production "is not ex-

pected to be affected greatly by the maritime strike," since "there is much unsatisfied demand along all-rail routes to take up some of the slack, provided cars are available." Meanwhile, the bureau calls attention to the fact that "in recent months the record proportion of about one-third of the bituminous coal mined has had some movement by water."

Would Grant Pullman Conductors' Wage Plea

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had continued at 240 hours, but he pointed out that the Pullman Company would then have been entitled to receive 240 credited hours of service, not 225 as now. "This is a two-way road," he added. "There are mutual obligations and rights involved." Justice Simmons then proceeded to discuss in detail the implications of the majority recommendation, coming at length to this illustration and comment:

"Take the basic hourly increase totaling 18.5 cents and multiply by 240 and you reach a monthly increase of $44.40. Now divide, not by 240 but by 225 and, 'presto chango or something,' the result in hourly increase is 19.73 cents. By the magic of the formula, in one round trip from the hourly rate up to the monthly rate and back to hourly increase rates, the hourly rate has increased by 1.23 cents. Of course, there is no magic in the formula. The increase is accomplished by the 240 figure used as a vehicle on the outbound trip.

Fallacious Formula — "I submit that any formula that reaches such a result is fallacious. But, even if sound, it should not be recommended for the fact remains that 19.73 cents per hour increase is 1.23 cents per hour increase in excess of the maximum limits fixed by the wage approval orders, and, so far as that is concerned, by the arbitration and emergency board awards and agreements preceding the approval orders.

"And this increase is not a fictitious one, but an actual one. It is one to be applied, if accepted, not to occasional exceptional conditions nor to 'fringe' conditions, nor for 'very limited purposes.' It is one to be applied if accepted to a substantial part of the hours earned by Pullman conductors. A Pullman conductor is paid solely on an hourly basis for all extra service, for all overtime, for deadheading, for extended special tours, when held for service, when performing station duty, when appearing as a witness, and for loss of sleep. Forty-one per cent of the hours worked by Pullman conductors are paid for on an hourly basis. The only figures furnished us are as of March, 1946."

In this connection, Justice Simmons proceeded to calculate that during March the hourly rate "entered into the pay actually received by approximately 80 per cent of all the Pullman conductors and is the exclusive base for the pay received by over 10 per cent of the Pullman conductors." He added: "If the position of the Pullman conductors is sustained in this controversy, it follows that an increase of 1.23 cents per hour above the maximum allowed by the wage approval orders will be granted in a very substantial way and amount. To rest this recommendation on an increase per month formula is to ignore this very important fact situation in this case."

Majority Position—Meanwhile, as the latter implies, the majority report had rested its recommendation on an increase per month formula. It did so with much rationalization and talk about the peculiarities of the railroad wage structure where such terms as "hour," "day," and "month" are "terms of art" which through usage have come to have distinctive meanings. Thus it finally got around to adopting the O. R. C. contention that the monthly rate was the basic rate and the hourly rate a derivative therefrom. The Pullman Company, as the majority report put it, took the position in effect "that the hourly rate and the monthly rate represent different ways of saying the same thing."

"The correct way to view the hourly rate," said the report, "is to accept it for what it is—a derivative of the monthly rate set down, not as a measure of all work, but as a device to be put to the very limited purpose of calculating extra service, overtime, loss of sleep, and all other work which is not an inseparable part of the basic month's service." Although the majority mentioned the evidence indicating that 41 per cent of all service rendered by Pullman conductors in March was paid for on an hourly basis, it bolstered its reference to the rate's "very limited purpose" with a prediction that "in the normal situation, likely to be recaptured, the great bulk of the work will be done by regular conductors with fixed schedules, and the work not paid for fully and directly by monthly wages will be what it has always been intended to be, a miscellany of extras."

Looking for Precedents—In its search for "precedents," the majority found that the monthly wage adjustment for various other groups of employees, including dining car stewards, chefs, cooks, waiters, porters, and chair car attendants had been $44.40 on the basis of a 240-hour month. Getting around the obstacle thrown up by the fact that these employees still have a 240-hour basic month, the report said:

"The question arises, therefore, as to whether the Pullman conductors should be penalized in the adjustment of their monthly wages because of the fact that they succeeded in obtaining a more favorable working rule than these other classes of employees. The monthly rate of pay is designed to cover a minimum full month's service, whether that service comprehends a basic month of 240 or 225 hours. The reduction of hours to 225 was not accompanied by any reduction in the monthly wages of the Pullman conductors, and no adequate reason appears for computing subsequent increases or decreases in these monthly wages on any other basis than 240 hours. . . . If hourly changes were hereafter to be multiplied by 225 in translating them into monthly wage rates, the advantage obtained by the Pullman conductors through the reduction of hours to 225 would in due course be completely neutralized, and they might eventually find themselves in even worse position, from the standpoint of the level of their monthly wages, than they were prior to the effectuation of the agreement of September 1, 1945."

Express Pay Basis — Other "precedents" cited by the majority were the awards of the $44.40 a month to yardmasters and train dispatchers, "although their agreements do not provide for a 240-hour service month." On the other hand, Messrs. Sharfman and Hamilton were not impressed with the fact that the increase was applied to express messengers employed by the Railway Express Agency by multiplying the 18½ cents by the 190 hours contemplated in their basic work month, thus giving them a monthly increase of only $33.15. "Such an adjustment," said the majority report, "has been customary for express messengers, in the interest of maintaining uniformity in the treatment of all express employees, and in conformity with the established practice of the large group of non-operating employees whose wage structure is based predominantly on hourly rates of pay."

This adjustment for express messengers was, in the opinion of Dissenter Simmons, a real precedent. He noted that it followed "exactly the formula the Pullman Company proposes here."

Car Service Orders

(*Continued from page 450*)

with fresh or green fruits or vegetables held for movement from one location to another within switching limits of the same city or town except when released within 48 hrs. of arrival. Amendment No. 6—December 18.

No. 575 which prohibits pre-icing of cars to be loaded with potatoes in Idaho, Oregon or Washington. Amendment No. 1—October 12.

No. 369 which provides for super-demurrage charges on closed box cars. Amendment No. 6—December 18.

Loading requirements for certain carload shipments of cranberries and table grapes have been modified by the Office of Defense Transportation through the issuance of two general permits. Under General Permit ODT 18A, Revised-20, carload shipments of cranberries may be made when such freight is packed in any type of container and the quantity loaded in each car is not less than 30,000 lb. and when originating in the states of Massachusetts or New Jersey and destined for any place in the country except points in Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, or Vermont. Carload shipments of cranberries may also be made from Wisconsin when the destination is any point west of a line extending along the eastern boundary of Minnesota and along the Mississippi river south to New Orleans, La.; and when the quantity loaded in a refrigerator car is not less than 30,000 lb. The permit, which became effective September 6, expires December 31.

Under the other permit, General Permit ODT 18A, Revised-21, carload shipments of table grapes may be made when they consist of Thompson seedless grapes or Malaga grapes originating in Arizona or California and the quantity loaded in each car is not less than 27,500 lb. When the freight consists of other types of table grapes originating in the same states, the quantity loaded in each car must be 32,000 lb. This permit also became effective September 6, and it expires January 31, 1947.

General Permit ODT 18A, Revised-22, has superseded General Permit 18A, Revised-17, as the modifier of the minimum-

carload order as it applies to shipments of fresh harvested Irish potatoes and certified seed potatoes. Changes made by the new permit, which became effective September 10 are as follows:

1. The 40,000 lb. modified loading requirement on shipments of new fresh harvested Irish potatoes originating in Arizona, California and New Mexico which expired on August 31, under the previous general permit is reinstated and continued in effect in Arizona and New Mexico until September 30, and in California until November 30.
2. The similar modified loading requirement on such shipments from the Colorado, Idaho, Nevada, Oregon, Utah and Washington, scheduled to expire on September 15, is extended to September 30.
3. A modified minimum loading requirement of 36,000 pounds is established on shipments of certified seed potatoes originating in California, Oregon or Washington when destined for California. The modification expires December 31.

By General Permit ODT 1, Revised-8, effective September 13, the O. D. T. has removed minimum-loading requirements on l. c. l. shipments of flat and uncompressed cotton in bales (1) when the shipments are consigned to any cotton concentration or compress point and (2) when the entire floor space of the car is occupied with the bales standing on end, one tier high. With the issuance of this permit, General Permit ODT 1, Revised-3, was canceled.

Additional news appears on page 463.

Equipment and Supplies

FREIGHT CARS

August Freight Car Deliveries Set New High for Year

New freight cars delivered in August for use on domestic railroads totaled 5,141, including 907 from railroad shops, it has been announced by the American Railway Car Institute.

"While this sets a new high for the year, achieved despite shortages of steel and other supplies, it still represents a rate of production equal to only about one-third of the capacity of the car-building industry," S. M. Felton, president of the Institute, said. The present volume, he added, can be maintained only if steel and other supplies can be assured in adequate quantities, a problem on which the Institute has been working in close cooperation with the railroads, the steel companies and various governmental agencies.

During the first eight months of 1946, deliveries to domestic roads accounted for 27,703 freight cars and on September 1 the backlog of domestic car orders amounted to 57,378, the Institute said. Orders were placed in August for 9,530 new freight cars, including 2,218 from railroad shops, compared with July orders for 15,236 cars, which included 4,150 from railroad shops.

The ILLINOIS TERMINAL has ordered 150 50-ton 40½-ft. steel sheathed box cars from the American Car & Foundry Co. This is in addition to an order for 200, which was reported in the *Railway Age* for May 11, page 977.

The NEW YORK, CHICAGO & ST. LOUIS is inquiring for 500 50-ton box cars and 100 50-ton automobile cars.

The AMERICAN REFRIGERATOR TRANSIT COMPANY, owned jointly by the Missouri Pacific and the Wabash, is inquiring for 2,000 40-ton refrigerator cars.

SIGNALING

The UNION PACIFIC has ordered from the Galvin Manufacturing Company two-way radio apparatus to equip 16 locomotives, two remote control stations and one fixed transmitter. The new frequency modulation equipment, which is being installed in the road's Kansas City, Mo.-Kan. terminals, will operate on a very high frequency voice channel of 161.85 megacycles and is expected to be placed in service about September 20. Transmitters and receivers will be placed in 16 switch engines, and remote control units, operating through the fixed transmitter, will be installed in the yard office in the Fairfax industrial district and in the 7th Street yard office.

Supply Trade

H. H. Landis has been appointed eastern division sales manager of the **Joyce-Cridland Company,** with headquarters at Dayton, Ohio.

John C. Tracey has been appointed sales engineer of the Washington, D. C., office of the **Permutit Company.** Mr. Tracey was formerly a lieutenant colonel with the United States Army Engineers.

J. C. Leonard, formerly manager of the Chicago division of **Oakite Products, Inc.,** has been appointed sales manager of the company's industrial marketing division, with headquarters in New York.

Ray D. Cunningham has been appointed director of sales of the **Nox-Rust Chemical Corporation,** Chicago. He was previously general sales manager of the Wolf's Head Oil Refining Company, Oil City, Pa.

Henry J. Wallace has been appointed general manager of sales of the **National Tube Company,** a subsidiary of the United States Steel Corporation, succeeding **W. F. McConnor,** whose election as vice-president of sales was reported in the *Railway Age* for August 17, page 313.

William E. Wilkins, who prior to his call to active military duty in 1941, was assistant to the sales manager of the **American Lumber & Treating Co.** at Boston, Mass., has returned to the company as a member of its New York sales staff.

Keith Hopkins, formerly supervisor of the car-order section of the traffic department of the **Caterpillar Tractor Company,** Peoria, Ill., has been appointed assistant traffic manager, to work in conjunction with Roy J. Rhodes, who has served as an assistant traffic manager for several years.

John E. Fogarty, formerly manager of the weldment division of the **Graver Tank & Mfg. Co., Inc.,** has been appointed general manager of the company's Sand Springs, Okla., plant. **Edward B. Heyden,** formerly with the Lummus Company, has been placed in charge of Graver's construction division, replacing **Lloyd K. Wells,** who has retired.

H. H. Harris and **K. O. Hanson,** formerly associated with the Graybar Electric Company, are operating as the **Harris-Hanson Company,** with headquarters at 427 North Euclid avenue, St. Louis, Mo. They have been appointed by the **Webster Electric Company** of Racine, Wisc., to handle their line of Teletalk intercommunicating equipment, sound equipment and phonograph pickups in the St. Louis territory.

Frank W. Lampton, formerly sales manager, has been appointed general sales manager of the **Hunt-Spiller Manufacturing Corporation,** Boston, Mass. Mr. Lampton was born in Fort Scott, Kan., in 1889 and was graduated from Windsor Business College, Fort Scott. He began his career in 1907 as a machinist's apprentice with the St. Louis-San Francisco at Fort Scott and served as machinist from 1912 to 1915. He joined the Arcadia

Frank W. Lampton

(Kan.) Coal & Mining Co., in 1915, as master mechanic and in 1917 he again became associated with the St. Louis-San Francisco serving successively as night roundhouse foreman at Pittsburg, Kan.; general foreman, Wichita, Kan.; general foreman, Thayer, Mo., and general foreman, south shops, Springfield, Mo. Mr. Lampton joined Hunt-Spiller in 1926 as representative in the southwest territory. He was appointed assistant sales manager in 1941 and sales manager in 1942.

A two-year expansion program at the Fairfield sheet mill of the **Tennessee Coal, Iron & Railroad Co.,** Birmingham, Ala., a United States Steel subsidiary, has begun, which will result in the conversion of the mill from the hot-rolled process of producing sheets to the cold-rolled method. Equipment for the production of galvanized

sheet metal in coils will also be added to the mill, as a part of the modernization program.

The **Union Asbestos & Rubber Company** of Chicago, manufacturers of asbestos insulation, industrial packings and various prefabricated metal specialties, has announced a program to expand its Blue Island, Ill., plant. The program involves the installation of additional heavy machinery and equipment to be completed in the early fall and the extension of several buildings scheduled for completion by the first quarter of 1947.

OBITUARY

Charles J. Pilliod, who retired in 1944 as president of the Standard Locomotive Equipment Company at Toledo, Ohio, died recently in that city.

Ralph D. Prettie, formerly president of the Northern Wood Preservers, Ltd., Port Arthur, Ont., died at his home in that city on August 13, at the age of 63. For 20 years before entering the wood preserving and creosoting field in 1923, Mr. Prettie was superintendent of forestry on the Canadian Pacific at Winnipeg, Man., and Calgary, Alta.

Financial

ATLANTIC COAST LINE-SEABOARD AIR LINE.—*Operation.*—Division 4 of the Interstate Commerce Commission has authorized (1) the Seaboard to operate a 3.35-mile line extending from a connection with its so-called Elfers branch to a point designated as Wye Junction in Pasco and Pinellas Counties, Fla.; (2) the A. C. L. to operate a 2.02-mile line extending from a connection with its Jacksonville, Fla.-St. Petersburg line, near Tarpon Springs, Fla., to a connection with the Seaboard at Wye Junction and (3) both the A. C. L. and the Seaboard to jointly operate a 0.48-mile line owned jointly by them extending from Wye Junction to an industrial plant located in the immediate area. The lines involved were constructed by the roads as industrial tracks.

BALTIMORE & OHIO.—*Stock of Alton Affiliates.*—Division 4 of the Interstate Commerce Commission has cleared the way for sale by this road of the stock it holds of three subsidiaries of the Alton, including 7,413 shares of Joliet & Chicago guaranteed 7 per cent stock, 3,617 shares of guaranteed 6 per cent preferred and 23 shares of guaranteed 7 per cent common of the Kansas City, St. Louis & Chicago, and 1,576 shares Louisiana & Missouri River guaranteed 7 per cent preferred. The commission's action was a third supplemental order in Finance Docket Nos. 7585 and 8064, eliminating from a prior order of March 16, 1932, provisions which had prohibited the B. & O. from selling the stocks without authorization of the commission. (Previous item in *Railway Age* of August 17, page 314.)

CENTRAL OF NEW JERSEY.—*Reorganization Expenses.*—Division 4 of the Interstate Commerce Commission has approved $25,249.36 as the maximum limit of final allowance to be paid to Josiah Stryker and R. Paul Mitchell, attorneys for the trustees, for services and expenses in connection with this road's reorganization proceedings.

CHICAGO, ROCK ISLAND & PACIFIC.—*Reorganization.*—Division 4 of the Interstate Commerce Commission has set back from September 24 to November 19 the further hearing in connection with this road's plan of reorganization under Section 77 of the Bankruptcy Act. The November 19 hearing will be at Washington, D. C., before Roger T. Boyden, chief, Reorganization Section, Bureau of Finance, and Examiner Harvey H. Wilkinson. As noted in the *Railway Age* of July 6, page 19, the plan of reorganization previously approved by the commission has been referred back to it by Judge Michael L. Igoe of the U. S. District Court for the Northern District of Illinois.

DELAWARE, LACKAWANNA & WESTERN.—*Control of Leased Line.*—This road has applied to the Interstate Commerce Commission for authority to acquire control, through the purchase and ownership of stock, of the Cayuga & Susquehanna, which the applicant has operated under lease since 1855. At the same time, both roads asked the commission to approve a transaction whereby the C. & S., which extends 34.24 miles from Owego, N. Y., to Ithaca, would merge into the D. L. & W. (See the *Railway Age* for July 20, page 110.)

DENVER & RIO GRANDE WESTERN.—*Acquisition.*—This road has applied to the Interstate Commerce Commission for authority to acquire from the Salt Lake & Utah a segment of track extending approximately 10 miles between Provo, Utah, and Orem. The applicant proposes to use the track, which had been abandoned by the S. L. & U., for moving freight cars in switching service. The acquisition will be financed from the applicant's available funds.

NEW YORK, NEW HAVEN & HARTFORD.—*Annual Report.*—Operating revenues of this road in 1945 totaled $173,196,985, a decrease of $9,197,345, under the figure for the preceding year. Operating expenses were $142,224,845, an increase of $17,018,960. Fixed charges were $11,917,384, a decrease of $112,226. Net income was $3,596,689, a decrease of $10,474,431. Current assets at the end of the year totaled $91,569,204, an increase of $7,297,172. Current liabilities were $29,796,258, a decrease of $15,121,485. Long term debt was $260,818,844, a decrease of $2,628,684.

UNION.—*Equipment Trust Certificates.*—Division 4 of the Interstate Commerce Commission has authorized this road to assume liability for $1,500,000 of 1¼ per cent serial equipment trust certificates, the proceeds of which will be applied toward the payment of approximately $2,014,900 for 500 70-ton hopper cars. The certificates will be dated September 1 and will mature in 10 equal annual installments of $150,000 each starting September 1, 1947. The report approves a selling price of 98.333, the bid of Halsey, Stuart and Co., Inc., which had been accepted subject to commission approval. On this basis, the average annual cost will be approximately 1.57 per cent.

UNION PACIFIC.—*Acquisition.*—The Oregon Short Line, together with its lessee, the Union Pacific, have applied to the Interstate Commerce Commission for authority to purchase from the Central Pacific a 1.83-mile line between Corinne, Utah, and Corinne Junction.

Average Prices Stocks and Bonds

	Sept. 10	Last week	Last year
Average price of 20 representative railway stocks .	49.08	52.36	55.45
Average price of 20 representative railway bonds .	90.96	94.66	96.55

Dividends Declared

Norwich & Worcester.—8% preferred, quarterly, $2.00, payable October 1 to holders of record September 16.

Railway Officers

EXECUTIVE

Eloy S. Vallina has been elected president of the Mexico North-Western, and **Gen. A. A. Guerrero** and **S. R. Rosoff** have been elected vice-presidents of the road.

The office of vice-president, executive department, of the Boston & Maine, with headquarters at Boston, Mass., has been abolished. This position was held by **Arthur B. Nichols** until his retirement on August 28. His biography and photograph appeared in the September 7 issue of *Railway Age.*

FINANCIAL, LEGAL AND ACCOUNTING

Gustav A. Wallis, whose appointment as auditor of disbursements for the New York, Chicago & St. Louis, with headquarters at Cleveland, Ohio, was announced in

Gustav A. Wallis

the August 17 issue of *Railway Age,* was born on May 1, 1890, at Indianapolis, Ind., and entered railroading there in 1908 as a

messenger for the Cincinnati, Hamilton & Dayton (now the Baltimore & Ohio). He became a bill clerk for the Pennsylvania in 1909, and later that year joined the Lake Erie & Western (a part of the N. Y., C. & St. L.) as a voucher clerk. With the L. E. & W. he advanced successively to auditor of disbursements in 1912, assistant auditor in 1920, then to special accountant for the Nickel Plate consolidated company in 1923, with headquarters at Cleveland. From 1933 to 1942, Mr. Wallis served as auditor of disbursements, then was appointed assistant to general auditor, which post he held until his recent reappointment as auditor disbursements.

A. J. Sevener has been appointed auditor of the Detroit & Mackinac, with headquarters at Tawas City, Mich.

P. F. Osborn has been appointed attorney for the Gulf, Mobile & Ohio, with headquarters at Mobile, Ala.

Thomas T. Railey, whose appointment as senior law officer of the Missouri Pacific, with headquarters at St. Louis, Mo., was announced in the *Railway Age* of August 31, was born at Harrisonville, Mo., in 1885. Following his graduation from the Univer-

Thomas T. Railey

sity of Missouri in 1907, Mr. Railey engaged in private law practice at St. Louis until 1915, when he joined the Missouri Pacific as assistant general solicitor. When the road's reorganization began, his title was changed to assistant to counsel for the trustee, which he still retains. Mr. Railey is also general counsel for the American Refrigerator Transit Company and the Missouri Pacific Transportation Company.

Arturo Wisbrun has been elected treasurer of the Mexico North-Western, and **P. D. Aliaga** has been appointed comptroller.

R. A. Podlech, supervisor of freight claim prevention department on the Atchison, Topeka & Santa Fe, with headquarters at Los Angeles, Cal., has retired after 46 years service.

William F. Brunner, whose retirement as real estate and tax agent of the Pittsburgh & Lake Erie and the Lake Erie & Eastern, with headquarters at Pittsburgh, Pa., was announced in the August 10 issue of *Railway Age,* was born on July 24, 1881, at Allegheny City, Pa., and entered railroading in 1902 as a stenographer in the passenger department of the Pittsburgh & Lake Erie. He was appointed voucher clerk in 1904, then secretary to the vice-president in 1910, and advanced to assistant to the vice-president in April, 1918. In July of that year he was named assistant to the federal manager, and 4 months later became assistant to the president. Mr. Brunner was appointed assistant secretary of the P. & L. E. in 1920, then assistant to the vice-president in 1921. In 1929 he was given the post from which he recently retired.

William H. Armbrecht, Jr., vice-president of the Alabama, Tennessee & Northern, with headquarters at Mobile, Ala., has been appointed also general counsel.

OPERATING

Alfonso C. Merino, acting car accountant of the Mexican, has been appointed car accountant, with headquarters as before at Mexico, D. F., Mex.

J. D. Taylor has been appointed assistant to general manager, Lines West, of the Great Northern, with headquarters at Seattle, Wash.

P. E. Thomas has been appointed acting dining car superintendent of the Kansas City Southern, with headquarters at Kansas City, Mo.

John F. Eagan, assistant general superintendent of the B. M. T. division of the New York City Transit System, retired on September 1 after 42 years' service. **Edward T. McNally** succeeds him.

Stanley W. Crabbe, whose appointment as general superintendent, New Brunswick district, of the Canadian Pacific, with headquarters at St. John, N. B., was announced in the August 31 issue of *Railway Age,* was born at Teeswater, Ont., on August

Stanley W. Crabbe

9, 1885. He entered railroad service in 1903 as a telegraph operator for the Canadian Pacific, and has subsequently been division superintendent of the Schreiber division, and at Smith's Falls, Ont., and London, Ont. In 1937, Mr. Crabbe became superintendent of the Bruce division at Toronto, Ont., and of the Toronto Terminals, then in December, 1945, was appointed assistant general superintendent at St. John, the post he maintained until his promotion on September 1.

W. A. Jackson, general superintendent telegraph and telephone, New York Central System at New York, will retire September 30 after 55 years of service to the railroad.

Z. M. Morris, superintendent of transportation on the Alabama, Tennessee & Northern, with headquarters at Mobile, Ala., has been promoted to general superintendent.

A. B. Enderle, superintendent on the Atchison, Topeka & Santa Fe, with headquarters at San Bernardino, Cal., has been promoted to assistant general manager, Coast lines, with headquarters at Los Angeles, Cal., succeeding **G. R. Buchanan,** whose promotion to assistant to vice-president, Operating department, with headquarters at Chicago, was reported in the *Railway Age* of August 3.

P. A. Wagner, acting superintendent of dining cars of the Louisville & Nashville, has been appointed superintendent of dining cars, with headquarters as before at Louisville, Ky., succeeding **A. E. Flock,** who died recently.

W. T. Rice, supervisor of track for the Richmond, Fredericksburg & Potomac, with headquarters at Fredericksburg, Va., has been appointed superintendent of the Potomac Yard, jointly owned by the B. & O., C. & O., Pennsylvania, R. F. & P., and Southern, with headquarters at Alexandria, Va.

Thomas Creighton Macnabb, whose retirement as general superintendent, New Brunswick district, of the Canadian Pacific, with headquarters at St. John, N. B., was announced in the August 31 issue of *Railway Age,* was born at Toronto, Ont., and was graduated from Manitoba University in 1902. He began his railway career in 1899 as a billing clerk for the Canadian Pacific, and advanced successively through the posts of chainman, axeman, topographer, and draftsman by 1903. He served as resident engineer at various western points from 1905 to 1908, when he was named assistant engineer and locating engineer at Weyburn, Sask., where he became assistant engineer construction later the same year. Mr. Macnabb was promoted to maintenance engineer at Regina, Sask., in 1915; district engineer at Moose Jaw, Sask., in 1916; and division engineer at Revelstoke, B. C., in 1917, in which post he served until 1926, when he was appointed engineer of construction, western lines, with headquarters at Winnipeg, Man. In 1934 Mr. Macnabb was appointed to the post from which he retired at the end of August.

TRAFFIC

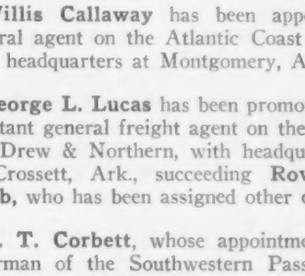
C. L. Shortridge, assistant general passenger agent of the Missouri Pacific, with headquarters at Memphis, Tenn., has been

promoted to assistant passenger traffic manager, with headquarters at Houston, Tex., succeeding **A. D. Bell**, whose death was reported in the *Railway Age* of August 3. Mr. Shortridge is succeeded by **W. F. Vitt,** district passenger and freight agent at Philadelphia, Pa., who in turn is succeeded by **R. L. Roberts. H. R. Kastman** has been appointed district passenger agent, with headquarters at Chicago.

Willis Callaway has been appointed general agent on the Atlantic Coast Line, with headquarters at Montgomery, Ala.

George L. Lucas has been promoted to assistant general freight agent on the Ashley, Drew & Northern, with headquarters at Crossett, Ark., succeeding **Rowland Robb,** who has been assigned other duties.

V. T. Corbett, whose appointment as chairman of the Southwestern Passenger Association, with headquarters at St. Louis, Mo., was reported in the *Railway Age* of September 7, was graduated from Notre Dame University, and began his railroad career in 1905. Since 1911, Mr. Corbett



V. T. Corbett

has been in the passenger department of the Rock Island, and in 1939 became assistant general passenger agent, in charge of rates and divisions. During the war, he was in charge of military movements on the Rock Island, and for a time was an assistant to the director of the Office of Defense Transportation.

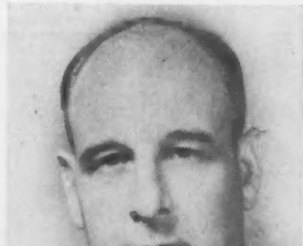
Walter F. Smith, general agent of the Chicago, Indianapolis & Louisville, with headquarters at Milwaukee, Wis., has returned to that position following his release from military service.

George L. Oliver, whose appointment as passenger traffic manager of the Florida East Coast, with headquarters at St. Augustine, Fla., was announced in the August 10 issue of *Railway Age,* was born at Washington, D. C., on June 19, 1894, and was employed in government service from 1910 to 1916, before entering railroading with the Atlantic Coast Line in 1917. After service in the United States Navy during World War I, he joined the Southern in 1919, then went with the United States Shipping Board in 1920. Later that year he returned to the A. C. L. as assistant city ticket agent at Washington, advancing in 1922 to traveling passenger agent at New York, then becoming district passenger agent at Montgomery, Ala., in which capacity he served also at Washington, D. C., and Miami, Fla. In 1925, Mr. Oliver became assistant secretary of the Miami

George L. Oliver

Chamber of Commerce, then that same year joined the Florida East Coast as district passenger agent at Miami. He was promoted to assistant general passenger agent at St. Augustine in 1927, transferring to New York in 1933, then to Miami in 1938. He was appointed general passenger agent at St. Augustine in 1939, the post he maintained until he became passenger traffic manager.

Charles C. Correll, whose appointment as assistant freight traffic manager of the Southern, with headquarters at Raleigh, N. C., was announced in the August 3 issue of *Railway Age,* was born on December 9, 1902, at Taylorsville, N. C., and was graduated from North Carolina State College in 1926. He entered railway service that year as a student clerk for the Southern at Washington, D. C., advancing to general



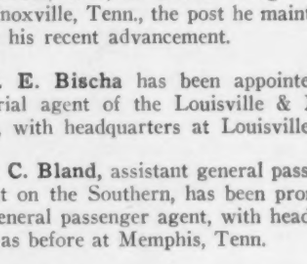
Charles C. Correll

clerk there in 1927, then to secretary to division freight agent at Winston-Salem, N. C., in 1928. He then held successively the posts of rate clerk, chief clerk, and freight traffic representative at various points, until 1933, when he left railway service to become traffic manager of the Grogan Oil Company at Shreveport, La. Mr. Correll rejoined the Southern as freight traffic representative at Charlotte, N. C., in 1940, and was named commercial agent at New Orleans, La., two months later, then district freight and passenger agent at Shreveport in 1941. In August 1942, he entered military service, and returned to the Southern in December, 1945, as district freight agent at Knoxville, Tenn., the post he maintained until his recent advancement.

R. E. Bischa has been appointed industrial agent of the Louisville & Nashville, with headquarters at Louisville, Ky.

J. C. Bland, assistant general passenger agent on the Southern, has been promoted to general passenger agent, with headquarters as before at Memphis, Tenn.

A. J. Dickinson, whose retirement as passenger traffic manager of the Great Northern, with headquarters at St. Paul, Minn., was reported in the *Railway Age* of September 7, was born at Jefferson, Ohio, on August 19, 1875, and, following his



A. J. Dickinson

graduation from the University of Minnesota, began his railroad career in 1898 as a clerk in the dining and sleeping car department on the Great Northern. In 1902, Mr. Dickinson joined the passenger department as ticket stock clerk, and held several other positions until 1911, when he was advanced to assistant general passenger agent. He was promoted to passenger traffic manager in 1920. He is past president of the American Association of Passenger Traffic Officers and of the St. Paul Transportation Club, and an honorary life member of the American Association of Traveling Passenger Agents and American Association of Ticket Agents.

Joseph Banuet, Jr., has been appointed general agent on the Atchison, Topeka & Santa Fe, with headquarters at Mexico, D. F., Mex.

Bruce A. Rogers has been appointed director of development of the Kansas City Southern, with headquarters at Kansas City, Mo.

Murray Smith, district passenger agent of the Chicago, Rock Island & Pacific, with headquarters at San Francisco, Cal., has

been promoted to general agent, passenger department, with headquarters at Kansas City, Mo. He is succeeded at San Francisco by **G. N. Brown.**

R. D. Beddoes has been appointed industrial agent of the Chicago & North Western, with headquarters at Chicago.

Ray F. Clark, whose retirement as general freight agent of the Grand Trunk Western, with headquarters at Chicago, was reported in the *Railway Age* of August 31, began his railroad career on January 2, 1899, as an office boy on the Chicago & North Western at Chicago. He attained the position of contracting freight agent on that road, and in 1911 became traveling agent on the Canadian Northern. In 1914 Mr. Clark went to Pittsburgh, Pa., as general agent, returning to Chicago in 1916, and when the C. N. was absorbed into the Canadian National-Grand Trunk Western, he became general agent of the latter road, holding that position until 1930, when he was promoted to assistant general freight agent at Chicago. In 1944, Mr. Clark was further advanced to general freight agent.

Willard Adamson, general agent of the Northern Pacific, with headquarters at Cleveland, Ohio, has been transferred to Detroit, Mich., succeeding **George Barnes,** who has been appointed special representative pending his retirement. Mr. Adamson has been succeeded at Cleveland by **P. H. Boardman. W. C. Wilson** has been appointed general agent at Bellingham, Wash., succeeding **W. H. Jaynes,** who has retired. **D. F. Walker**, general agent at Oakland, Cal., has been transferred to Los Angeles, Cal., succeeding **J. C. Spracklin,** who has been transferred to Oakland. **H. R. Cotton,** district passenger agent at Missoula, Mont., has been transferred to St. Paul, Minn., succeeding **G. L. Brooks,** who has resigned. **W. C. Widenhoefer** succeeds Mr. Cotton at Missoula.

Bruce Noble, theatrical agent of the Canadian Pacific at New York, has retired after nearly 50 years in railroad service.

PURCHASES AND STORES

A. G. Denham, assistant general storekeeper of the St. Louis-San Francisco, with headquarters at Springfield, Mo., has been promoted to assistant chief purchasing officer, with headquarters at St. Louis, Mo. He is succeeded at Springfield by **H. Gibson.**

E. J. Clark, chief lumber inspector of the Chicago, Burlington & Quincy, with headquarters at Chicago, has been promoted to assistant purchasing agent, with headquarters at Seattle, Wash., succeeding **O. A. Schultz,** whose death is reported elsewhere in these columns. Mr. Clark is succeeded by **W. F. Myers,** district storekeeper at Sheridan, Wyo., who in turn is succeeded by **A. G. Runge,** district storekeeper at Lincoln, Neb. **J. J. Jirousek,** district storekeeper at Hannibal, Mo., has moved to Lincoln, succeeding Mr. Runge, while **F. T. Hagemeier,** district storekeeper at St. Joseph, Mo., has been transferred to Hannibal. **B. W. Higdon,** commissary storekeeper at Lincoln, succeeds Mr. Hagemeier at St. Joseph.

ENGINEERING & SIGNALING

H. H. Shannon, whose retirement as signal engineer of the New York, Ontario & Western, with headquarters at Middletown, N. Y., was announced in the August 24 issue of *Railway Age,* was born there on August 31, 1886, and entered the service of the New York, Ontario & Western as a batteryman in 1907. He advanced to signal maintainer in 1908, then to signal maintainer foreman in 1912. He was promoted to assistant electrical and signal engineer in 1929 and to electrical and signal supervisor in 1937. Mr. Shannon held the latter position until 1942, when he was appointed signal engineer, the post from which he has now retired.

Glenn E. Tracey, whose appointment as signal engineer on the New York, Ontario & Western, with headquarters at Middletown, N. Y., was reported in the *Railway Age* of August 24, was born at High View, N. Y., on April 29, 1911, and was graduated

Glenn E. Tracey

from Bucknell University in 1935, with a B. S. degree in chemical engineering. He entered railway service in the engineering department of the New York, Ontario & Western in 1926 during summer vacations. Mr. Tracey later entered the employ of the Bethlehem Steel Company, in the railroad sales department. He subsequently served as a student engineer on the Delaware & Hudson; inspector of engineering material, U. S. Navy; and methods engineer, Calco Chemical Company. Returning to the New York, Ontario & Western, he served in the motive power department until he was transferred to the maintenance of way department. Later he was transferred to the signal department, in which he served in the capacities of helper and maintainer. He held the latter position at the time of his recent promotion.

MECHANICAL

L. W. Van Nattan has been appointed supervisor of Diesel equipment on the Kansas City Southern, with headquarters at Pittsburg, Kan.

SPECIAL

A. Hector Cadieux, deputy chief of the department of investigation of the Canadian Pacific, has been appointed chief of the department, with headquarters as before at Montreal, Que., succeeding **Major General E. de B. Panet,** who has retired after 21 years in that post. **Stanley H. Spry,** assistant to the chief, has been appointed deputy chief, also remaining at Montreal.

L. A. Moore has been appointed director of public relations and industrial development of the Alaska.

H. B. Pilcher has been appointed superintendent of safety on the Wabash, with headquarters at St. Louis, Mo., succeeding **D. G. Phillips,** who has retired.

F. R. Frazer, inspector of police for the Pennsylvania and the Long Island at New York, has been given charge of the operations of the police service within the New York Zone, due to the absence of the superintendent of police.

Michael Dann, formerly director of public relations for the Hygrade Food Products Corporation, has been appointed public relations representative of the New York, New Haven & Hartford, with headquarters at New York. **Alvin V. Sizer,** reporter for the Bridgeport Telegram and feature writer for the Bridgeport Sunday Post before service with the United States Army as captain, heading the 43rd Division press section, has been appointed editor of the New York, New Haven & Hartford's "Along the Line" and "Rider's Digest," with headquarters at New Haven, Conn.

OBITUARY

O. A. Shultz, assistant purchasing agent of the Chicago, Burlington & Quincy, with headquarters at Seattle, Wash., died in that city of a heart attack, on August 25. Mr. Schultz was born in 1889, and began his railroad career with the Burlington in 1905 at Galesburg, Ill. In 1915, he was promoted to stores department foreman at Aurora, Ill., and became chief lumber inspector at Chicago in 1922. In 1932, he was appointed storekeeper at Galesburg, and in 1937 moved to Seattle as Pacific Coast lumber agent. He was advanced to assistant purchasing agent in 1941.

U. M. Kress, engineer of water service on the Union Pacific, with headquarters at Denver, Colo., died in that city on September 4, after a short illness. Mr. Kress, who had 43 years of service with the road, first entered its employ in 1903 as an assistant chemist. In 1916, he became a member of the staff of Dr. William Barr, research and standards consultant for the company, with headquarters at Omaha, Neb. He engineered the erection of the road's first water softener and supervised all other installations made throughout the system. He was stationed at Valley, Neb., and Columbus and other points on the line prior to his transfer to Denver.

Table of Revenues and Expenses appears on next left-hand page

REVENUES AND EXPENSES OF RAILWAYS

Month of July and Seven Months of Calendar Year 1946

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income 1946	1945
Akron, Canton & Youngstown	July	171	$337,129	$124	$354,965	$67,797	$42,843	$22,529	$124,799	$279,104	78.6	$75,861	$20,767	$35,049	$12,981
	7 mos.	171	2,080,445	803	2,197,503	422,618	282,293	163,896	826,986	1,838,192	83.6	359,311	135,870	99,455	360,498
Alton	July	959	1,549,134	570,824	2,400,641	576,644	468,123	85,664	990,462	2,496,971	104.0	—96,330	168,676	—469,242	368,499
	7 mos.	959	9,728,705	4,769,589	16,646,999	3,737,812	3,259,633	570,427	7,356,668	16,189,753	97.3	457,246	1,235,321	—1,873,120	3,136,825
Atchison, Topeka & Santa Fe System	July	13,085	28,987,449	6,632,763	38,685,770	5,754,775	6,954,927	749,854	12,676,702	27,676,102	71.5	11,009,668	5,469,556	5,261,217	5,463,145
	7 mos.	13,085	167,234,043	49,525,709	234,895,361	34,777,344	46,513,903	5,114,979	85,219,751	177,675,448	75.6	57,219,913	31,512,445	26,019,075	35,934,877
Atlanta & West Point	July	93	232,668	98,664	358,680	41,634	58,018	12,600	165,923	296,486	82.7	62,194	11,432	33,951	31,621
	7 mos.	93	1,416,144	593,290	2,247,782	309,534	390,913	86,308	1,157,891	2,088,965	92.9	158,817	cr51,785	67,789	217,500
Western of Alabama	July	133	211,742	102,454	335,451	40,063	70,831	12,463	136,169	275,296	82.1	60,155	36,975	29,684	42,121
	7 mos.	133	1,391,940	624,180	2,200,496	350,396	441,391	83,574	978,241	1,985,740	90.2	214,756	41,736	185,521	270,094
Atlantic Coast Line	July	5,569	6,770,011	2,051,094	9,404,330	2,528,541	1,655,674	246,881	4,368,470	9,250,932	98.4	153,398	600,000	—649,138	94,746
	7 mos.	5,569	52,637,164	17,328,186	74,878,056	18,858,179	12,895,933	1,776,674	31,869,642	68,775,139	91.8	6,102,917	5,300,000	—1,588,414	5,487,661
Charleston & Western Carolina	July	343	382,974	10,758	402,006	72,289	70,306	13,484	172,781	337,206	83.9	64,800	25,000	37,479	42,390
	7 mos.	343	2,060,547	57,900	2,174,474	526,449	482,169	86,954	958,971	2,108,833	97.00	65,641	150,000	—100,754	287,948
Baltimore & Ohio	July	6,139	23,448,221	3,091,005	27,933,900	3,522,481	5,910,574	666,018	11,863,114	23,208,461	83.1	4,725,439	1,621,123	2,643,953	3,843,564
	7 mos.	6,139	134,501,664	23,060,254	167,280,253	25,506,074	41,391,277	4,268,801	76,364,573	156,283,504	93.4	10,996,749	11,306,907	—2,871,946	26,801,907
Staten Island Rapid Transit	July	29	168,173	138,494	317,319	42,395	33,399	1,531	166,066	268,812	84.7	48,506	36,403	—10,470	56,654
	7 mos.	29	1,054,930	813,543	1,946,190	356,925	258,810	10,861	1,081,937	1,873,776	96.3	72,413	252,428	—310,088	610,555
Bangor & Aroostook	July	602	523,811	65,280	612,920	237,970	202,624	6,773	226,756	714,144	216.5	—101,224	497	—61,602	48,032
	7 mos.	602	6,097,860	387,908	6,660,756	1,627,568	1,449,934	50,322	2,077,663	5,478,055	82.2	1,182,701	595,785	577,391	738,584
Bessemer & Lake Erie	July	214	2,068,485	1,717	2,082,472	134,411	412,351	15,332	403,490	1,011,918	48.6	1,070,554	477,735	846,876	611,606
	7 mos.	214	6,635,962	11,569	6,744,453	994,393	2,814,566	108,553	2,157,867	6,395,001	94.8	349,452	807,808	1,211,384	2,075,233
Boston & Maine	July	1,762	4,323,093	1,753,719	6,586,874	1,102,175	1,040,437	89,650	2,842,770	5,354,131	81.3	1,232,743	470,986	506,384	877,522
	7 mos.	1,764	29,768,401	9,913,131	43,488,644	7,559,158	7,466,018	696,738	19,619,274	37,295,243	85.8	6,193,401	3,286,398	945,590	4,715,823
Burlington, Rock Island	July	228	298,251	84,772	404,124	57,353	43,824	4,731	154,335	279,366	69.1	124,758	11,676	52,128	25,606
	7 mos.	228	1,401,509	472,517	2,008,625	305,952	231,192	27,697	770,747	1,457,808	72.6	550,817	68,617	177,934	391,347
Cambria & Indiana	July	35	144,183	.....	144,295	17,724	42,837	691	20,655	89,893	62.30	54,402	67,636	83,467	52,110
	7 mos.	35	724,340	.....	724,786	88,864	337,537	4,745	124,199	608,019	83.89	116,767	308,447	340,197	348,810
Canadian Pacific Lines in Maine	July	234	159,599	58,055	251,171	89,307	51,223	9,347	125,195	288,128	114.7	—36,957	21,190	—115,242	85,120
	7 mos.	234	2,527,903	462,340	3,212,174	577,987	505,856	59,796	1,324,628	2,553,793	79.5	658,381	158,138	—27,483	911,434
Canadian Pacific Lines in Vermont	July	90	100,613	16,319	132,234	61,837	27,911	3,376	119,795	219,263	165.8	—87,029	10,514	—136,652	—80,535
	7 mos.	90	675,747	114,678	915,919	306,908	237,200	21,691	866,830	1,471,662	160.7	—555,743	75,299	—906,581	—746,552
Central of Georgia	July	1,815	2,205,524	380,828	2,803,592	391,657	437,334	95,023	1,377,099	2,451,078	87.4	352,514	197,965	167,433	171,153
	7 mos.	1,815	13,879,088	2,970,640	18,573,614	3,111,785	3,255,306	644,954	9,172,789	17,274,618	93.0	1,298,996	1,408,151	12,336	3,246,138
Central of New Jersey	July	649	3,210,674	651,064	4,074,668	513,412	692,436	66,147	2,005,115	3,473,183	85.2	601,485	456,298	11,810	409,755
	7 mos.	649	21,322,270	3,858,243	26,855,064	3,507,488	5,398,299	456,353	13,835,832	24,509,901	91.3	2,345,163	2,771,636	—1,483,566	3,830,811
Central Vermont	July	422	515,511	115,000	681,211	124,037	113,777	12,401	365,474	654,101	96.0	27,110	42,810	—58,222	63,666
	7 mos.	422	3,501,980	548,000	4,409,200	761,313	816,003	75,371	2,439,388	4,329,369	98.2	79,831	312,029	—593,130	20,697
Chesapeake & Ohio	July	3,102	16,097,003	1,229,353	18,085,739	2,106,652	3,451,179	314,352	5,984,179	12,464,022	68.9	5,621,717	2,735,841	3,198,457	2,565,133
	7 mos.	3,089	91,237,874	9,122,228	104,274,168	14,916,199	20,026,117	2,160,929	35,876,732	77,409,130	74.2	26,865,038	14,488,029	15,412,792	18,589,520
Chicago & Eastern Illinois	July	910	1,642,041	452,964	2,274,228	337,721	436,046	81,159	989,252	1,956,054	86.0	318,174	136,000	54,206	231,321
	7 mos.	910	9,551,460	2,761,506	13,704,260	2,306,857	3,063,557	546,213	6,485,233	13,216,309	96.4	487,951	951,000	—1,348,552	1,745,001
Chicago & Illinois Midland	July	131	580,280	1,064	615,027	69,632	138,544	24,307	178,685	438,987	71.4	176,040	78,689	94,151	73,252
	7 mos.	131	2,974,082	6,120	3,128,087	341,124	726,073	178,190	1,062,990	2,510,588	80.3	617,499	311,332	309,711	560,408
Chicago & North Western	July	8,065	9,369,233	3,265,173	14,047,840	2,098,068	2,383,129	270,617	6,124,221	11,552,058	82.2	2,495,782	911,196	1,345,578	2,002,763
	7 mos.	8,065	57,899,641	20,658,199	88,389,899	14,996,584	18,146,373	1,819,308	39,919,781	79,202,113	89.6	9,187,786	6,296,213	1,267,046	13,148,200
Chicago, Burlington & Quincy	July	8,868	12,219,888	2,650,233	16,387,177	2,988,500	2,314,993	365,285	5,663,814	12,043,306	73.5	4,343,871	1,857,238	2,023,987	2,556,414
	7 mos.	8,864	82,253,345	17,973,625	111,431,408	17,733,395	15,491,643	2,382,181	39,219,347	79,244,764	71.1	32,186,644	14,756,930	14,983,532	18,898,865
Chicago Great Western	July	1,500	1,810,990	173,949	2,176,964	371,057	332,190	54,910	994,782	1,827,152	83.9	349,812	cr12,196	231,652	213,825
	7 mos.	1,500	12,232,264	1,355,630	15,076,487	2,854,428	2,371,452	501,904	7,374,515	13,656,926	90.6	1,419,561	734,764	—576,342	1,671,023
Chicago, Indianapolis & Louisville	July	541	880,552	51,958	981,221	203,109	197,121	39,632	416,630	907,971	72.5	73,250	65,227	—67,585	145,540
	7 mos.	541	5,137,162	299,701	5,750,291	934,291	1,238,365	254,567	2,601,575	5,380,521	93.6	369,770	424,885	—550,415	1,295,820

REVENUES AND EXPENSES OF RAILWAYS

REVENUES AND EXPENSES OF RAILWAYS

Month of July and Seven Calendar Months of Year 1946

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income 1946	1945
Chicago, Milwaukee, St. Paul & Pacific	July	10,733	$12,369,025	$2,605,860	$16,729,802	$3,068,649	$3,111,977	$377,417	$7,260,955	$14,713,226	87.9	$2,016,576	$1,226,000	$451,929	$2,383,495
	7 mos.	10,733	80,846,978	17,705,489	110,204,525	20,053,134	22,010,904	2,306,500	50,709,805	100,875,415	91.5	9,329,110	3,629,000	2,819,151	17,068,419
Chicago, Rock Island & Pacific	July	7,651	11,761,683	2,729,757	15,569,516	2,111,502	2,159,457	411,120	5,426,214	10,776,347	69.2	4,793,169	1,689,562	2,364,459	2,782,247
	7 mos.	7,652	65,793,883	18,425,713	91,609,742	12,565,520	15,396,766	2,743,676	35,650,841	71,064,359	77.6	20,545,383	6,858,742	9,027,960	16,885,680
Chicago, St. Paul, Minneapolis & Omaha	July	1,616	1,643,551	343,971	2,219,368	328,801	321,884	48,870	1,101,092	1,904,776	85.8	314,592	160,935	89,424	395,937
	7 mos.	1,616	11,250,442	1,936,283	14,739,287	2,597,090	2,732,333	336,412	7,844,757	14,197,724	96.3	541,563	1,120,483	—1,448,923	2,089,280
Clinchfield	July	302	1,182,871	11,097	1,206,866	96,019	211,495	26,883	298,357	657,501	54.5	549,365	138,579	465,371	414,235
	7 mos.	302	7,099,317	58,799	7,231,420	747,704	1,233,538	181,288	2,031,156	4,367,111	60.4	2,864,309	962,844	2,142,805	3,445,466
Colorado & Southern	July	748	650,776	136,071	880,232	152,853	134,690	20,707	389,222	746,200	84.8	134,032	46,570	83,853	264,304
	7 mos.	748	4,122,084	1,215,865	5,961,725	1,148,142	1,121,257	144,493	2,582,419	5,341,869	89.6	619,856	454,281	97,847	1,516,184
Fort Worth & Denver City	July	902	927,000	207,691	1,226,129	178,678	161,199	33,081	370,638	808,562	65.9	417,567	51,518	326,606	200,403
	7 mos.	902	4,542,973	1,676,314	6,879,038	1,512,786	1,130,116	223,297	2,492,996	5,807,131	84.4	1,071,907	400,241	488,754	929,670
Colorado & Wyoming	July	42	75,526	.....	119,460	11,135	18,801	712	51,775	88,520	74.1	30,940	13,624	17,291	20,047
	7 mos.	42	418,321	.....	699,134	62,545	99,292	5,500	288,279	496,936	71.0	202,198	37,950	152,016	136,046
Columbus & Greenville	July	168	132,207	5,159	145,737	30,408	16,512	4,978	52,370	119,144	81.8	26,593	9,344	16,812	1,193
	7 mos.	168	863,546	39,732	962,770	209,218	143,081	34,852	351,835	842,043	87.5	120,727	81,239	38,875	53,927
Delaware & Hudson	July	846	3,237,877	197,983	3,539,256	613,491	677,478	57,396	1,531,673	3,021,508	85.4	517,748	229,563	305,107	399,162
	7 mos.	846	22,071,311	1,055,302	23,776,725	3,670,112	5,541,468	395,488	10,386,390	20,960,675	88.2	2,816,050	1,587,181	1,355,768	3,006,507
Delaware, Lackawanna & Western	July	973	4,427,875	983,545	5,926,259	929,930	986,818	129,379	2,927,328	5,179,306	87.4	746,953	483,787	220,029	768,719
	7 mos.	973	28,880,583	6,085,385	38,513,144	5,047,769	6,920,326	877,226	19,624,578	33,919,407	88.1	4,593,737	2,643,861	1,709,636	2,775,482
Denver & Rio Grande Western	July	2,386	3,496,936	614,236	4,316,859	622,588	956,783	122,968	1,662,499	3,590,685	83.2	726,174	318,831	419,578	1,285,730
	7 mos.	2,386	21,401,302	5,395,633	28,349,506	3,859,700	6,906,679	823,212	11,547,885	24,662,096	87.0	3,687,410	2,158,393	1,467,222	8,402,345
Denver & Salt Lake	July	232	255,851	8,938	277,533	71,732	59,356	3,789	102,454	250,088	90.1	27,445	32,554	40,631	113,879
	7 mos.	232	1,668,618	51,027	1,797,652	394,505	391,781	27,528	712,720	1,619,442	90.1	178,210	226,282	263,523	534,718
Detroit & Mackinac	July	230	110,359	2,556	118,121	18,704	11,461	719	40,258	75,922	64.3	42,199	5,036	27,125	7,741
	7 mos.	230	644,429	25,750	713,638	154,862	99,965	5,292	265,173	560,725	78.6	152,913	34,773	63,887	9,051
Detroit & Toledo Shore Line	July	50	339,580	.....	342,121	44,754	33,867	10,854	123,604	222,207	64.9	119,914	34,542	25,203	43,550
	7 mos.	50	2,295,924	.....	2,306,686	246,433	211,158	73,085	813,192	1,409,080	61.1	897,606	267,457	215,807	391,020
Detroit, Toledo & Ironton	July	464	735,111	1,428	778,656	100,910	150,894	17,680	245,841	543,311	69.8	235,345	69,227	136,645	77,966
	7 mos.	464	4,980,807	7,914	5,252,797	729,455	1,094,596	121,946	1,661,513	3,804,198	72.4	1,448,599	456,243	749,661	1,192,111
Duluth, Missabe & Iron Range	July	546	4,763,823	5,425	5,545,796	644,257	406,933	5,688	1,128,902	2,234,838	40.3	3,310,958	1,471,602	1,851,377	2,099,145
	7 mos.	546	12,485,042	26,784	14,540,673	2,840,715	2,633,714	42,707	4,154,187	10,013,224	68.9	4,527,449	2,268,415	2,261,875	5,408,322
Duluth, Winnipeg & Pacific	July	175	177,000	3,000	184,400	65,308	37,388	3,286	89,305	200,372	108.7	—15,972	16,349	—54,057	22,423
	7mos.	175	1,423,000	12,700	1,466,500	365,122	242,941	19,294	683,461	1,343,519	91.6	122,981	124,928	—191,082	52,275
Elgin, Joliet & Eastern	July	392	2,011,072	44	2,524,611	267,487	417,126	20,538	1,066,676	1,850,320	73.3	674,291	158,939	460,832	118,562
	7 mos.	392	11,282,378	207	13,638,468	1,880,520	2,899,145	140,817	6,535,037	11,997,918	88.0	1,640,550	1,059,047	—107,509	2,366,563
Erie	July	2,242	9,539,390	876,203	11,107,535	1,447,501	2,007,053	262,185	5,329,734	9,612,356	86.5	1,495,179	580,157	147,194	1,329,372
	7 mos.	2,242	58,804,299	5,828,145	69,114,935	7,945,794	14,111,565	1,759,115	34,873,585	62,570,469	90.5	6,544,466	3,975,888	—1,365,631	9,945,511
Florida East Coast	July	682	1,006,969	468,100	1,611,481	341,528	385,242	52,638	711,230	1,600,122	99.3	11,359	66,344	24,494	255,964
	7 mos.	682	9,997,462	4,939,998	16,243,762	2,259,849	2,518,880	392,724	5,970,671	12,133,716	74.7	4,110,046	984,985	2,362,861	3,331,535
Georgia Railroad	July	328	599,952	85,843	724,019	92,571	153,789	25,517	343,139	630,908	87.1	93,111	37,329	56,738	210,164
	7 mos.	328	3,639,734	607,702	4,513,030	658,367	901,844	178,771	2,288,364	4,200,763	93.1	312,267	263,916	94,809	1,247,795
Georgia & Florida	July	408	205,705	3,488	213,573	50,100	28,082	12,537	82,303	181,283	84.9	32,290	12,539	7,661	3,226
	7 mos.	408	1,305,782	21,574	1,361,940	368,889	190,250	81,556	543,952	1,239,849	91.0	122,091	84,741	—50,786	46,541
Grand Trunk Western	July	972	2,692,000	249,000	3,213,000	562,363	573,302	52,091	1,539,379	2,862,401	89.1	350,599	191,885	—12,989	387,973
	7 mos.	1,003	15,610,000	1,757,000	18,662,000	3,638,977	3,922,444	317,658	9,994,803	18,737,346	100.4	—75,346	933,342	—1,624,208	2,853,706
Canadian National Lines in New England	July	172	134,000	22,000	172,600	66,896	34,516	2,255	108,818	220,481	127.7	—47,881	24,814	—106,467	—45,743
	7 mos.	172	990,100	79,700	1,242,300	389,640	274,962	15,949	769,059	1,560,627	125.6	—318,327	155,110	—733,296	—455,776
Great Northern	July	8,332	10,272,073	1,411,691	13,092,966	2,204,729	2,487,484	264,227	5,065,957	10,578,132	80.8	2,514,834	1,172,813	1,372,256	5,759,371
	7 mos.	8,332	69,892,197	9,900,498	87,396,300	17,448,663	17,174,145	1,965,926	33,307,576	73,473,282	84.1	13,923,018	8,026,346	5,397,820	16,934,537
Green Bay & Western	July	234	221,327	826	227,209	54,501	22,715	12,991	83,815	185,187	81.5	42,022	22,474	9,122	22
	7 mos.	234	1,469,726	3,092	1,509,042	357,841	159,699	80,021	601,735	1,278,502	84.7	230,540	173,007	—5,458	52,485
Gulf, Mobile & Ohio	July	1,945	2,651,352	155,225	2,904,026	556,791	518,761	109,057	1,030,296	2,362,951	81.4	541,075	190,007	230,554	282,848
	7 mos.	1,945	18,174,888	1,126,402	19,986,889	3,977,994	3,812,773	720,409	7,323,272	16,861,073	84.4	3,125,816	1,350,370	650,210	2,532,911

REVENUES AND EXPENSES OF RAILWAYS

Month of July and Seven Calendar Months of Year 1946

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income 1946	1945
Illinois Central	July	6,585	$13,149,110	$2,289,665	$16,443,771	$3,210,551	$2,866,605	$324,887	$6,582,396	$13,836,368	84.1	$2,607,403	$1,481,354	$919,321	$2,251,365
	7 mos.	6,601	90,094,545	18,964,085	117,084,763	21,101,342	20,474,711	2,238,710	46,085,090	96,220,782	82.2	20,863,981	11,250,909	8,203,675	17,999,828
Yazoo & Mississippi Valley	July		Included in Illinois Central												
	7 mos.		" " " "												
Illinois Central System	July		Included in Illinois Central												
	7 mos.		" " " "												
Illinois Terminal	July	476	559,904	151,868	803,219	112,458	115,758	24,345	322,325	610,495	76.01	192,724	86,359	78,510	107,247
	7 mos.	476	3,640,352	1,004,862	5,154,574	806,761	768,607	164,991	2,131,919	4,091,672	79.38	1,032,902	512,488	397,512	832,024
Kansas City Southern	July	890	2,250,216	254,784	2,695,163	232,914	309,460	68,526	971,534	1,705,124	63.3	990,039	308,000	521,619	454,690
	7 mos.	890	13,945,443	1,688,049	16,946,483	1,726,450	2,372,304	488,821	5,841,040	11,248,681	66.4	5,697,802	1,881,000	2,923,405	3,561,731
Kansas, Oklahoma & Gulf	July	328	278,916	1,761	283,661	51,102	17,942	13,545	83,962	180,760	63.7	102,901	30,079	44,231	103,233
	7 mos.	328	2,114,223	10,807	2,147,958	295,835	169,051	91,503	606,137	1,258,345	58.6	889,613	312,453	397,554	638,985
Lake Superior & Ishpeming	July	156	288,354	119	361,355	48,293	34,151	1,075	73,237	165,246	45.7	196,109	24,476	177,357	134,868
	7 mos.	156	790,603	631	942,511	286,052	280,878	5,484	307,672	939,133	99.6	3,378	163,026	122,008	346,329
Lehigh & Hudson River	July	96	222,971	.....	223,147	42,776	34,775	6,006	79,004	169,680	76.0	53,467	14,416	15,432	22,130
	7 mos.	96	1,483,483	.....	1,487,064	269,744	232,096	43,247	527,850	1,124,962	75.6	362,102	155,259	99,548	172,415
Lehigh & New England	July	190	623,284	.....	628,901	58,987	93,570	10,331	211,356	396,634	63.1	232,267	104,363	133,503	57,959
	7 mos.	190	3,603,228	.....	3,637,464	440,854	685,736	70,163	1,321,336	2,676,145	73.6	961,319	481,459	579,235	472,779
Lehigh Valley	July	1,254	4,928,529	552,635	5,854,899	825,951	851,597	123,998	2,684,656	4,715,210	80.5	1,139,689	426,997	580,055	986,459
	7 mos.	1,254	30,551,776	4,014,779	37,244,636	4,973,088	5,318,029	903,434	18,336,230	31,139,073	83.6	6,105,563	2,932,217	1,988,479	2,910,571
Louisiana & Arkansas	July	756	961,958	83,037	1,090,829	149,005	138,564	32,362	378,220	739,993	67.8	350,836	109,814	176,593	289,647
	7 mos.	756	6,506,693	700,587	7,497,066	991,347	1,043,887	257,857	2,531,164	5,139,904	68.6	2,357,162	789,828	1,101,316	1,659,649
Louisville & Nashville	July	4,759	12,354,304	2,098,064	15,217,561	2,010,673	3,115,563	263,757	6,403,642	12,341,467	81.1	2,876,094	1,714,857	1,698,584	2,351,936
	7 mos.	4,758	74,073,769	15,165,652	95,275,881	13,761,795	20,719,121	1,797,983	40,568,100	80,812,061	84.8	14,463,820	9,586,964	7,454,408	15,050,303
Maine Central	July	988	1,282,149	313,612	1,697,133	317,672	293,141	17,536	702,815	1,388,723	81.8	308,410	147,280	118,763	127,204
	7 mos.	988	9,684,956	1,570,263	11,943,706	2,120,612	2,184,295	113,398	5,162,020	9,982,058	83.6	1,961,648	813,473	643,430	1,083,503
Midland Valley	July	334	147,335	24	149,336	38,704	16,506	3,227	49,719	114,190	76.5	35,146	11,974	15,158	41,463
	7 mos.	334	898,527	163	913,771	202,225	108,223	21,185	345,754	720,485	78.8	193,286	80,530	57,191	174,628
Minneapolis & St. Louis	July	1,408	1,102,995	20,662	1,169,095	298,754	204,537	88,604	448,871	1,114,362	95.3	54,733	64,209	—12,110	44,512
	7 mos.	1,408	7,131,778	224,264	7,711,054	1,930,586	1,423,007	603,061	3,197,409	7,670,136	99.5	40,918	269,952	—337,693	888,979
Minneapolis, St. Paul & Sault Ste. Marie	July	3,224	1,718,931	189,774	2,078,635	489,684	370,116	48,764	1,039,965	2,042,982	98.3	35,653	166,717	—143,841	437,382
	7 mos.	3,224	12,216,161	954,337	14,270,474	3,232,612	2,782,312	325,032	7,062,526	13,994,951	98.1	275,523	1,171,242	—856,527	1,388,796
Duluth, South Shore & Atlantic	July	530	334,905	16,187	386,004	88,020	67,951	14,369	158,613	341,452	88.5	44,552	21,925	13,704	37,019
	7 mos.	530	2,063,618	94,025	2,318,990	500,569	459,310	93,369	1,065,559	2,185,936	94.3	133,054	146,431	—83,925	345,291
Spokane International	July	152	130,286	2,596	140,640	29,437	14,301	3,207	45,817	99,603	70.8	41,037	21,052	11,037	24,762
	7 mos.	152	766,778	20,248	838,863	207,862	113,107	21,919	307,229	698,692	83.3	140,171	16,212	71,321	166,424
Mississippi Central	July	148	64,430	986	66,481	11,092	10,227	8,568	18,644	55,453	83.4	11,028	2,864	2,582	18,785
	7 mos.	157	799,502	33,721	855,088	193,016	108,148	66,575	242,249	660,401	77.2	194,687	49,216	62,578	167,190
Missouri & Arkansas	July	365	138,757	2,383	150,444	37,176	22,640	7,457	59,037	132,733	88.2	17,711	6,110	—4,212	—45,819
	7 mos.	365	976,994	14,451	1,058,765	291,615	162,187	52,232	442,638	992,781	93.8	65,984	42,862	—93,118	—254,538
Missouri-Illinois	July	172	296,566	553	299,183	49,987	35,957	4,983	87,629	187,897	62.8	111,286	47,985	50,275	37,512
	7 mos.	172	1,866,434	3,056	1,883,290	309,436	237,959	34,200	563,667	1,196,567	63.5	686,723	314,555	322,568	259,256
Missouri-Kansas-Texas Lines	July	3,253	4,482,793	685,005	5,603,464	955,710	879,703	196,903	2,060,880	4,356,510	77.7	1,246,954	515,861	507,669	511,548
	7 mos	3,253	27,466,237	4,870,426	35,502,030	5,833,976	5,112,694	1,382,161	13,974,003	28,170,960	79.4	7,331,070	3,098,977	2,758,931	4,263,743
Missouri Pacific	July	7,080	12,570,267	1,881,638	15,643,961	2,609,680	2,589,611	366,759	6,363,246	12,557,734	80.3	3,086,227	840,407	1,674,277	2,658,260
	7 mos.	7,080	76,558,449	12,439,827	97,329,655	14,637,542	17,943,703	2,440,196	39,474,600	78,689,431	80.8	18,640,224	5,939,829	8,556,382	19,057,467
Gulf Coast Lines	July	1,934	2,557,571	155,545	2,826,315	549,957	360,400	68,562	1,039,427	2,119,468	74.78	706,847	123,017	431,880	264,529
	7 mos.	1,934	21,233,049	1,415,422	23,610,021	4,056,947	2,486,921	458,519	7,278,670	14,949,733	63.32	8,660,288	2,062,687	4,594,656	3,697,280
International-Great Northern	July	1,110	1,886,450	342,127	2,451,475	425,354	367,406	43,832	1,022,343	1,970,084	80.4	481,391	106,708	184,474	252,005
	7 mos.	1,110	11,710,435	2,246,306	15,621,634	3,272,468	2,471,347	295,425	6,579,914	13,380,754	85.7	2,240,880	737,720	271,501	2,088,753

Revenue tables continued on next left-hand page

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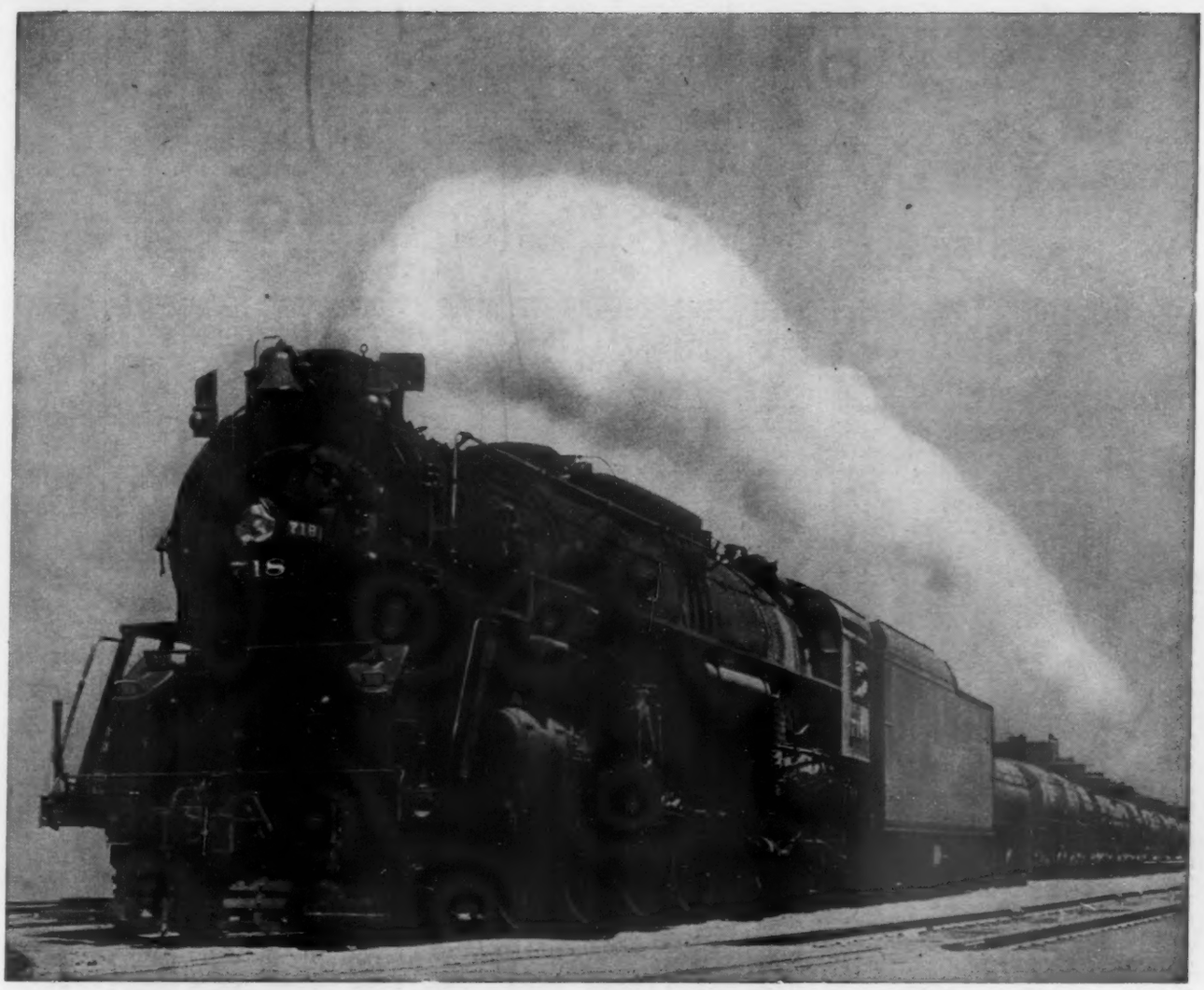


Nickel Plate 2-8-4 built by Lima

Today's Speed will be SLOW *tomorrow!*

AMERICAN business calls continuously for faster and faster deliveries. To meet this insistent demand, the railroads require motive power capable of hauling heavier trains at higher sustained speeds.

Lima is meeting this need by building steam locomotives that move heavy freight traffic at passenger train speed, with maximum efficiency and economy.

LIMA LOCOMOTIVE WORKS LIMA LOCOMOTIVE WORKS INCORPORATED **INCORPORATED, LIMA, OHIO**

REVENUES AND EXPENSES OF RAILWAYS

Month of July and Seven Months of Calendar Year 1946

Name of road		Av. mileage operated during period	Operating revenues			Operating expenses					Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income	
						Maintenance of									
			Freight	Passenger	Total (inc. misc.)	Way and structures	Equipment	Traffic	Transportation	Total				1946	1945
Monongahela	July	170	$513,386	$2,963	$519,513	$66,505	$61,599	$1,719	$145,318	$278,986	53.7	$240,527	$33,905	$117,141	$130,134
	7 mos	170	3,128,589	14,391	3,164,457	441,552	340,596	6,159	1,013,206	1,831,642	57.9	1,332,815	234,249	550,192	668,613
Montour	July	51	252,789	.....	254,269	22,253	75,032	1,339	90,623	198,534	78.1	55,735	44,539	49,266	68,217
	7 mos.	51	1,320,914	.....	1,328,635	152,094	444,215	9,653	509,242	1,179,075	88.7	149,560	192,984	185,447	408,883
Nashville, Chattanooga & St. Louis	July	1,053	2,123,937	286,981	2,611,483	460,534	481,176	97,213	1,117,921	2,259,947	86.5	351,536	196,240	145,022	168,217
	7 mos.	1,053	13,018,918	2,485,156	17,002,779	3,492,262	3,679,214	674,073	7,586,308	16,097,202	94.7	905,577	1,173,425	—312,552	2,602,293
New York Central	July	10,746	36,399,923	13,764,620	55,218,260	7,407,730	10,005,231	893,962	24,300,673	45,207,795	81.9	10,010,465	4,399,117	4,108,830	4,927,665
	7 mos.	10,746	221,406,078	88,013,225	342,827,199	48,751,626	72,173,631	6,120,756	162,868,223	308,309,198	89.9	34,518,001	16,953,238	7,386,354	33,699,048
Pittsburgh & Lake Erie	July	229	2,589,209	108,178	2,797,842	360,482	830,936	56,436	1,055,470	2,435,628	87.1	362,214	367,939	501,458	366,316
	7 mos.	229	13,020,742	660,805	14,288,679	2,407,086	5,606,955	370,922	6,843,229	16,144,702	113.0	—1,856,023	762,767	1,525,765	2,855,063
New York, Chicago & St. Louis	July	1,687	6,234,012	219,600	6,600,608	871,605	1,052,450	187,969	2,626,592	4,968,109	75.3	1,632,499	cr40,715	1,295,223	1,939,962
	7 mos	1,687	37,537,764	1,806,391	40,219,203	5,933,969	7,046,950	1,226,106	17,132,106	32,957,553	81.9	7,261,650	2,111,669	3,087,733	11,408,135
New York, New Haven & Hartford	July	1,843	6,281,731	5,373,837	12,633,870	2,119,577	1,955,331	256,322	5,832,137	11,126,027	88.1	1,507,843	370,000	—56,189	1,616,651
	7 mos.	1,841	42,003,701	35,860,207	84,636,918	13,516,780	13,506,842	1,521,402	38,491,165	73,168,238	86.4	11,468,680	5,037,500	—1,297,896	11,380,364
New York Connecting	July	21	165,714	.....	164,321	67,080	14,463	.....	57,022	140,909	85.8	23,412	35,120	71,713	186,703
	7 mos.	21	1,198,604	.....	1,213,825	393,889	110,884	.....	416,529	935,170	77.0	278,655	394,094	579,543	1,119,385
New York, Ontario & Western	July	547	640,023	54,451	751,401	147,426	124,131	24,744	380,717	703,834	93.7	47,567	45,564	—95,107	25,925
	7 mos.	547	3,499,444	98,510	4,092,742	681,115	781,845	177,767	2,335,871	4,178,319	102.1	—85,577	279,993	—875,698	—719,734
New York, Susquehanna & Western	July	120	227,322	40,734	277,479	38,527	43,909	4,729	156,507	261,188	94.1	16,291	37,434	—70,983	60,818
	7 mos.	120	1,914,604	282,219	2,279,815	235,153	262,672	34,028	1,053,672	1,711,851	75.1	567,964	268,998	—63,597	406,186
Norfolk & Western	July	2,161	10,291,941	911,584	11,508,626	1,447,954	2,236,272	211,521	3,504,829	7,808,226	67.8	3,700,400	2,145,434	2,288,026	1,777,770
	7 mos.	2,161	61,899,947	7,037,806	71,088,441	9,967,895	15,278,437	1,417,057	22,756,569	52,142,331	73.3	18,946,110	12,499,916	11,663,282	14,556,429
Norfolk Southern	July	727	634,651	16,435	673,109	160,268	82,685	37,807	272,043	588,417	87.4	84,692	41,050	5,387	42,451
	7 mos.	727	4,286,394	97,002	4,530,709	1,161,987	579,469	244,583	1,814,005	4,043,081	89.2	487,628	284,545	—59,973	372,901
Northern Pacific	July	6,872	7,739,430	1,006,688	9,796,754	1,851,794	2,050,772	219,909	3,804,040	8,546,765	87.2	1,249,989	906,066	830,513	1,959,774
	7 mos.	6,872	51,933,441	9,507,491	68,170,290	13,258,736	14,549,394	1,504,852	27,651,231	61,271,085	89.9	6,899,205	6,318,948	3,419,744	11,811,926
Northwestern Pacific	July	331	454,736	6,974	484,899	132,894	66,351	3,604	221,146	432,786	89.3	52,113	29,714	—5,463	18,270
	7 mos.	331	2,291,984	47,754	2,486,757	1,089,714	441,271	25,111	1,353,582	2,972,170	119.5	—485,413	194,145	—842,153	346,392
Oklahoma City-Ada-Atoka	July	132	61,479	.....	62,919	21,514	cr3,008	1,374	22,346	46,145	73.3	16,774	7,527	1,732	11,902
	7 mos.	132	534,467	23	553,913	146,797	23,744	9,190	165,555	373,024	67.3	180,889	56,959	41,267	109,988
Pennsylvania	July	10,121	52,023,231	18,227,618	75,850,499	10,094,693	16,800,224	1,326,761	34,716,469	66,087,562	87.1	9,762,957	3,909,849	5,015,836	10,145,094
	7 mos.	10,121	290,611,144	126,738,633	453,080,360	58,001,882	109,004,658	9,232,784	227,060,470	425,374,383	93.9	27,705,977	26,446,443	—2,694,293	76,166,269
Long Island	July	376	1,219,662	3,588,375	4,996,429	431,541	605,763	32,014	2,008,186	3,150,204	63.0	1,846,225	432,069	1,102,113	1,235,567
	7 mos.	376	7,411,025	17,353,498	26,070,299	2,967,069	3,824,630	139,805	13,301,169	20,763,150	79.6	5,307,149	2,989,441	296,793	2,003,680
Pennsylvania-Reading Seashore Lines	July	390	450,309	1,084,489	1,567,771	160,437	117,850	9,602	691,783	1,005,393	64.1	562,378	75,584	306,319	456,820
	7 mos.	390	2,853,736	2,963,468	6,013,659	1,173,507	754,017	60,856	3,628,288	5,798,449	96.4	215,210	502,454	—1,128,597	—53,430
Pere Marquette	July	1,951	3,907,198	277,292	4,555,060	702,654	815,284	103,635	1,983,882	3,835,381	84.2	719,679	255,529	298,867	507,891
	7 mos.	1,949	23,679,745	1,413,087	26,686,888	4,398,312	5,481,365	685,052	12,156,926	24,190,268	90.6	2,496,620	1,780,063	—72,384	4,477,520
Pittsburg & Shawmut	July	97	155,452	.....	156,163	52,657	21,498	3,049	49,385	132,829	85.1	23,334	5,690	10,312	19,217
	7 mos.	97	864,005	.....	870,058	201,560	171,452	17,894	281,999	718,242	82.6	151,816	32,784	82,016	162,165
Pittsburgh & West Virginia	July	136	430,126	.....	454,500	93,486	94,240	28,800	125,741	374,160	82.3	80,340	28,641	71,599	—257,696
	7 mos.	136	2,344,501	43	2,483,690	508,550	599,353	193,927	836,273	2,344,619	94.4	139,071	192,583	125,637	945,131
Pittsburg, Shawmut & Northern	July	122	70,459	.....	75,778	14,405	12,065	976	25,900	75,465	99.6	313	4,823	—15,311	—24,906
	7 mos.	171	481,525	.....	491,364	112,638	94,701	7,437	237,523	511,289	104.0	—19,925	37,531	—121,639	—69,576
Reading	July	1,362	7,381,339	759,129	8,532,683	1,352,176	1,688,787	106,371	3,520,736	6,925,149	81.2	1,607,534	892,955	755,452	1,197,630
	7 mos.	1,362	47,348,189	6,270,984	56,341,781	9,280,870	11,854,288	722,837	24,745,575	48,347,830	85.8	7,993,951	4,683,211	3,080,852	8,278,199
Richmond, Fredericksburg & Potomac	July	118	1,061,292	1,041,405	2,223,930	259,256	270,706	17,111	767,383	1,417,559	63.7	806,371	367,204	334,934	716,555
	7 mos.	118	8,178,202	6,443,331	15,724,867	1,990,968	2,059,572	119,429	5,796,361	10,736,307	68.3	4,988,560	2,320,936	1,809,938	1,899,461
Rutland	July	407	305,460	57,234	430,506	64,480	73,521	12,399	240,379	405,557	94.2	24,949	26,827	—13,466	54,698
	7 mos.	407	2,068,320	315,463	2,840,037	467,022	582,448	89,096	1,618,588	2,865,156	100.9	—25,119	185,653	—270,847	—46,853
St. Louis-San Francisco	July	4,645	6,442,870	1,095,961	8,140,106	1,051,028	1,462,017	218,343	3,344,371	6,448,481	79.2	1,691,625	516,909	1,300,135	1,416,798
	7 mos.	4,645	39,246,229	8,318,316	51,929,370	9,520,239	11,631,788	1,404,898	22,937,671	48,164,763	92.8	3,764,607	3,725,452	603,406	10,267,995

Revenue tables continued on next left-hand page

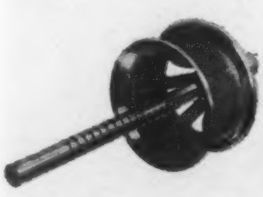
Make the most of...

Locomotive modernization programs

● It is especially important, in connection with locomotive modernization programs, to weigh carefully the possibilities of the Franklin System of Steam Distribution.

There are no other changes or combinations of changes which you can make in existing motive power that will produce such fundamental improvements in locomotive performance. Without increasing fuel consumption or boiler capacity, you can increase horsepower at normal operating speeds by 20% to 40%. When this greater power is not being utilized, you will achieve fuel savings ranging from 20% to 40%.

With the Franklin System of Steam Distribution, piston valves are replaced with fast-acting, lightweight poppet valves. This permits the use of larger steam passages. Separate control of intake and exhaust valve events permits late release and suitable compression even at shortest cutoffs. Efficiency of transforming steam into horsepower hours is materially improved.



We would like to show you how this can be accomplished — practically — with your locomotives, either freight or passenger.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK • CHICAGO • MONTREAL

STEAM DISTRIBUTION SYSTEM • BOOSTER • RADIAL BUFFER • COMPENSATOR AND SNUBBER • POWER REVERSE GEARS
AUTOMATIC FIRE DOORS • DRIVING BOX LUBRICATORS • STEAM GRATE SHAKERS • FLEXIBLE JOINTS • CAR CONNECTION

REVENUES AND EXPENSES OF RAILWAYS

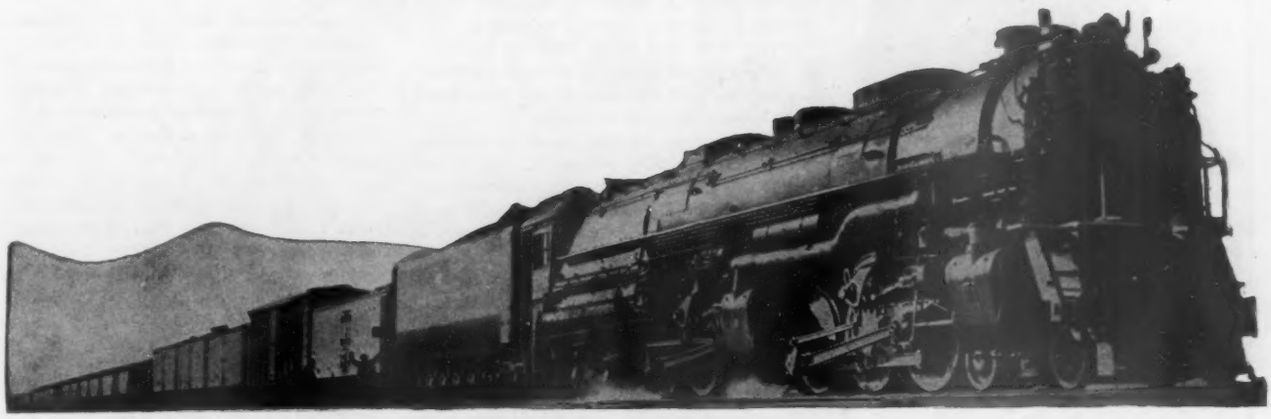
Month of July and Seven Months of Calendar Year 1946

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Railway tax accruals	Net railway operating income: 1946	1945
St. Louis, San Francisco & Texas	July	160	$304,386	$19,708	$335,623	$42,800	$39,863	$13,413	$152,465	$256,856	76.5	$78,767	$14,226	$38,164	$28,238
	7 mos.	160	1,838,296	164,685	2,077,989	314,074	274,380	91,101	945,479	1,683,029	81.0	394,960	95,439	109,524	233,495
St. Louis Southwestern Lines	July	1,575	3,945,509	168,034	4,243,706	636,404	550,798	121,943	1,278,941	2,738,025	64.5	1,505,681	529,455	789,402	817,820
	7 mos.	1,575	24,140,909	1,128,119	26,222,461	4,575,237	4,149,368	838,139	8,657,934	19,271,854	73.5	6,950,607	2,343,836	3,527,084	6,504,151
Seaboard Air Line	July	4,150	6,714,726	1,486,480	8,732,984	1,503,649	1,594,310	183,464	3,724,582	7,471,116	85.6	1,261,868	261,191	790,996	1,621,483
	7 mos.	4,150	49,434,301	13,864,617	67,625,501	11,118,787	11,507,248	1,827,172	26,976,667	54,774,626	81.0	12,850,875	3,474,807	6,709,810	11,335,829
Southern Railway	July	6,484	14,543,720	2,751,104	18,368,082	2,760,006	3,511,007	315,338	7,684,206	14,970,295	81.5	3,397,787	1,516,530	1,420,880	2,227,103
	7 mos.	6,484	91,701,558	21,940,255	121,748,374	19,960,837	22,759,010	2,169,147	49,552,844	99,492,000	81.7	22,256,374	10,006,128	9,456,237	18,639,583
Alabama Great Southern	July	315	938,732	183,922	1,190,061	207,964	264,822	25,224	447,511	996,095	83.7	193,966	108,839	52,072	138,827
	7 mos.	315	5,974,593	1,653,869	8,145,531	1,473,311	1,951,621	181,395	3,185,724	7,178,950	88.1	966,581	666,273	194,893	1,015,840
Cincinnati, New Orleans & Texas Pacific	July	337	2,242,646	386,172	2,770,916	289,417	560,085	54,592	974,703	1,970,801	71.1	800,115	345,736	444,693	436,441
	7 mos.	337	13,132,109	2,497,030	16,634,275	2,134,866	3,852,385	299,462	6,003,670	12,948,612	77.8	3,685,663	1,907,554	2,031,764	2,725,646
Georgia Southern & Florida	July	397	330,421	72,397	435,159	91,539	57,810	6,901	206,826	377,502	86.8	57,657	21,996	3,558	69,646
	7 mos.	397	2,278,134	701,440	3,273,700	652,501	483,177	43,477	1,411,231	2,699,848	82.5	573,852	187,346	163,539	483,033
New Orleans & Northeastern	July	204	520,651	116,445	674,116	174,249	85,021	15,111	226,746	535,275	79.4	138,841	48,030	33,996	106,442
	7 mos.	204	3,532,969	910,982	4,732,211	1,022,962	614,683	97,180	1,560,768	3,549,540	75.0	1,182,671	450,454	300,521	756,395
Southern Pacific	July	8,245	25,853,303	5,817,441	34,291,656	4,625,547	6,274,926	683,294	15,086,451	29,157,776	85.0	5,133,880	969,153	2,245,312	2,737,666
	7 mos.	8,246	155,590,963	45,238,061	220,637,234	34,581,498	47,127,242	5,189,130	95,204,849	198,469,320	90.0	22,167,914	cr47,021	13,462,397	21,741,533
Texas & New Orleans	July	4,322	7,008,792	1,318,438	8,834,148	1,569,777	1,319,467	187,362	3,501,892	7,037,483	79.7	1,796,665	108,304	1,240,866	1,178,281
	7 mos.	4,322	44,828,775	10,389,506	59,288,837	10,975,669	9,861,147	1,314,934	22,463,944	47,671,881	80.4	11,616,956	773,369	7,729,771	8,316,667
Spokane, Portland & Seattle	July	944	1,232,846	167,688	1,492,743	431,436	190,871	17,505	592,133	1,305,138	87.4	187,605	7,146	66,982	569,994
	7 mos.	944	8,917,471	785,016	10,418,464	3,362,986	1,336,574	118,810	4,123,756	9,434,710	90.6	983,754	402,288	—95,089	2,277,830
Tennessee Central	July	286	298,249	18,003	332,256	56,772	60,805	7,495	152,490	294,960	88.8	37,296	29,287	—10,064	26,147
	7 mos.	286	1,774,004	122,168	2,010,313	366,831	373,566	48,182	885,688	1,779,176	88.5	231,137	177,447	—58,711	176,592
Texas & Pacific	July	1,873	3,585,621	854,731	4,887,559	712,524	698,817	144,932	1,843,354	3,695,663	75.6	1,191,896	382,398	642,298	1,144,316
	7 mos.	1,873	22,784,519	6,725,697	32,637,467	4,989,924	4,949,757	958,983	11,343,228	24,306,612	74.5	8,330,855	2,672,655	4,604,422	5,676,715
Texas Mexican	July	162	288,456	211	313,065	36,390	21,253	5,360	76,265	150,530	48.1	162,535	19,394	124,310	117,025
	7 mos.	162	1,300,173	2,238	1,453,819	364,213	150,078	33,493	447,708	1,072,951	73.8	380,868	138,794	139,638	206,333
Toledo, Peoria & Western	July														
	7 mos.														
Union Pacific System	July	9,775	22,942,141	5,891,028	31,357,266	4,057,275	5,813,268	640,399	12,024,637	24,518,328	78.2	6,838,938	3,130,756	2,474,043	4,820,827
	7 mos.	9,776	138,708,335	40,907,285	198,292,089	27,053,644	39,439,316	4,572,718	76,104,485	160,587,179	81.0	37,704,910	18,862,220	13,499,804	24,791,626
Utah	July	111	151,103	.....	151,256	32,692	34,344	780	53,161	125,682	83.1	25,574	11,597	14,701	15,436
	7 mos.	111	832,287	.....	833,020	150,202	249,799	4,906	307,797	749,439	90.0	83,581	80,829	24,016	92,974
Virginian	July	661	2,408,857	9,856	2,472,851	305,053	602,423	32,317	568,142	1,570,291	63.5	902,560	457,000	593,932	568,811
	7 mos.	661	13,892,777	54,269	14,338,781	1,874,046	4,122,486	222,240	3,611,898	10,280,739	71.7	4,058,042	2,250,900	2,642,690	5,089,143
Wabash	July	2,393	6,012,939	725,355	7,152,211	1,169,852	1,004,817	212,361	2,993,923	5,681,588	79.4	1,470,623	467,380	573,170	666,714
	7 mos.	2,393	36,892,190	4,677,011	44,513,770	7,103,213	6,981,601	1,432,408	19,500,682	37,044,804	83.2	7,468,966	1,442,437	3,535,595	5,622,468
Ann Arbor	July	294	465,286	10,183	515,374	82,327	95,762	21,343	245,466	462,322	89.7	53,052	32,039	12,306	58,887
	7 mos.	294	3,285,069	46,719	3,451,097	481,718	674,255	134,298	1,689,686	3,081,432	89.3	369,665	204,635	79,508	444,059
Western Maryland	July	839	2,686,049	32,171	2,848,705	391,484	539,337	62,686	924,216	2,039,065	71.6	809,640	419,000	465,724	585,517
	7 mos.	839	16,453,266	259,833	17,485,240	2,349,436	3,446,763	413,596	6,073,982	13,088,005	74.9	4,397,235	2,081,000	2,627,793	3,857,001
Western Pacific	July	1,195	3,108,178	494,529	3,745,058	542,390	620,480	119,142	1,235,863	2,726,852	72.8	1,018,206	369,265	562,876	721,711
	7 mos.	1,195	18,065,588	4,547,473	23,495,321	3,727,328	4,030,815	793,947	8,943,982	18,755,412	79.8	4,739,909	2,015,269	2,137,920	4,076,710
Wheeling & Lake Erie	July	505	1,893,932	1	2,097,617	303,312	338,718	49,896	730,433	1,482,981	70.7	614,636	370,828	401,824	265,858
	7 mos.	505	10,405,295	15	10,806,637	1,715,827	2,330,887	347,630	4,189,560	9,003,185	83.3	1,803,452	1,687,588	1,343,340	2,097,426
Wisconsin Central	July	1,051	1,662,702	116,456	1,980,506	289,115	268,851	46,178	859,068	1,534,167	77.5	446,339	129,559	227,888	222,898
	7 mos.	1,051	10,860,554	678,122	12,678,041	1,793,925	2,026,353	328,136	5,918,049	10,550,776	83.2	2,127,265	627,534	652,227	1,765,780

News Department continued on next left-hand page

SECURITY CIRCULATORS

are a good investment . . .



for any one of these important reasons

1. They improve the circulation of the water in the boiler.
2. They aid in maintaining the steaming capacity of the boiler.
3. They reduce honeycombing, flue plugging and cinder cutting.
4. They permit the use of a 100% arch, and prolong the life of arch brick.

AMERICAN ARCH COMPANY, INC.

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SECURITY CIRCULATOR DIVISION

MEMO
TO A BUSY RAILROAD MAN
Remember us for better service on

CAR DECKING
•
CAR SIDING
•
CAR ROOFING
•
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CAR LINING
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CROSSING PLANK
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TIMBERS
•
GENERAL MAINTENANCE LUMBER

Southern Pine Lumber Company

Mills: Diboll and Pineland, Texas
Sales Office: Texarkana, U. S. A.

NEWS DEPARTMENT

(*Continued from page 457*)

Program for National Highway Transportation Congress

Addresses on "Highway Barriers, a Threat to Society" and "How We Pay for Our Highways" are among those scheduled to be made at the "National Highway Transportation Congress" to be held at the Mayflower Hotel in Washington, D. C., September 26-27, under the auspices of the National Highway Users Conference. The "barrier" talk will be by William L. Chenery, publisher of Collier's, while Dr. Charles L. Dearing of the Brookings Institution will discuss highway financing.

The program for the meeting was announced recently by Arthur C. Butler, director of N. H. U. C., whose statement said that "main work of the congress will be to draw up a positive program of action and policies which will assist highway using groups in solving the pressing problems of post-war highway transportation." The congress will be opened by Alfred P. Sloan, Jr., chairman of N. H. U. C., while the speaker at the banquet session will be Albert Bradley, chairman of the finance and policy committee on General Motors Corporation.

Also on the congress' program are meetings of various committees, including those on highway taxation, finance and administration; highway safety; removal of "trade barriers" to interstate commerce; size and weight restrictions; and resolutions. "Each committee," Mr. Butler's announcement said, "will draft reports, recommendations, and resolutions for action by the congress as a whole. Based on the committee's work the congress, in its final session, will draft an action program for the future guidance of all state highway user affiliates of the National Highway Users Conference. At that time national organizations will be elected to membership in the National Highway Users Conference and will be entitled to representation on the conference board of directors."

Argument on Ship-Competitive Rates Set Back a Month

The Interstate Commerce Commission has postponed from September 30 to October 30 the oral argument which it will hear on the question of whether or not it should undertake the comprehensive investigation sought by the United States Maritime Commission and War Shipping Administration into the lawfulness and reasonableness of railroad rates and practices which are competitive with those of domestic water carriers. The proceeding is docketed as Ex Parte 164 and the postponement order by Division 2 also extends from September 16 to October 16 the time for filing briefs.

The assignment of this oral argument was a part of the commission's response to the M. C.-W. S. A. request, another phase being the recent order requiring the railroads to show cause why the commission should not vacate or modify outstanding fourth-section orders in some 60 proceedings wherein relief from the long-and-short-haul clause has been granted in connection with the maintenance of water-competitive rates.

As noted in the *Railway Age* of August 31, page 377, the deadline date for the filing of railroad returns to this show-cause order has been postponed from September 9 to October 9.

Fuel Administration Diverts Tidewater Coal

Simultaneously with the embargo on rail shipments to tidewater, because of the maritime strike, the Solid Fuels Administration for War issued a September 5 notice of direction to shippers of bituminous coal instructing them to divert to their Great Lakes and all-rail accounts the coal they are prevented from shipping to tidewater. The direction temporarily modifies regulations prohibiting soft coal stockpiling, but does not remove restrictions limiting the over-all tonnage any consumer is entitled to on a yearly quota basis.

The preference to the Great Lakes is not affected and the direction requires that preference in shipments be afforded those all-rail consumers with the lowest supply on hand.

A. A. R. Reports Sharp Decline in Troop Movements

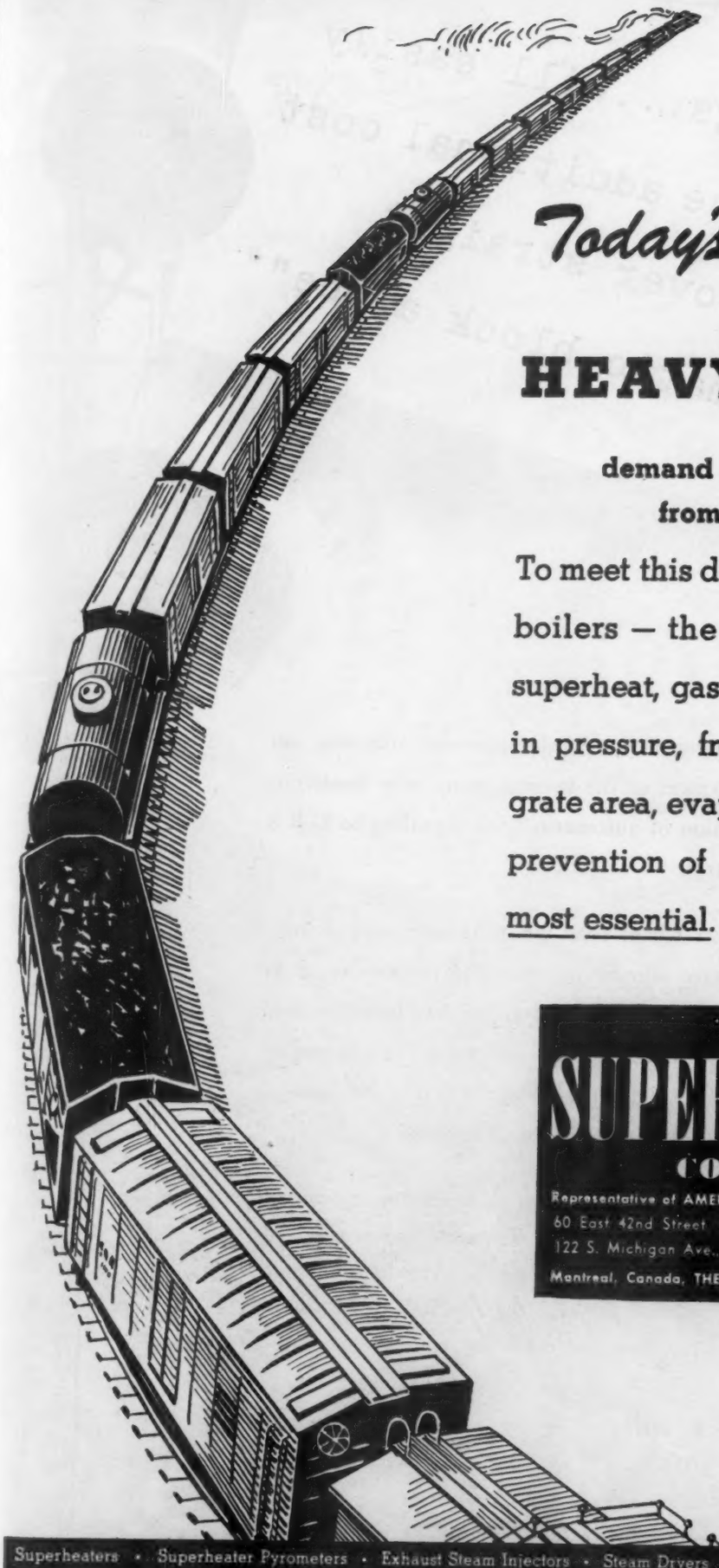
Troop movements on the railroads have declined 77 per cent since last December, it was disclosed this week by the Association of American Railroads. The A. A. R. pointed out that the decrease in military traffic accounts in part for the decline of approximately 30 per cent in passenger-miles during July as compared with the corresponding 1945 month.

During July, the latest month for which statistics are available, 248,421 service personnel and prisoners of war were transported by rail in organized movements, as compared with 1,087,300 in December, 1945. In handling this military traffic, the railroads performed 260,953,700 passenger-miles during July, 80 per cent less than last December.

K. C. S. Speeds Trains

In a general revision of its passenger train schedules, effective September 1, the Kansas City Southern, cut 40 min. from the running time of the northward "Southern Belle," its streamlined train operating between New Orleans, La., and Kansas City, Mo. At the same time the "Flying Crow," operating between Kansas City and Port Arthur, Tex., was quickened 30 min. in each direction, while an adjustment in the schedule of the "Shreveporter" operating from Hope, Ark., to Shreveport, La., and handling through sleeping cars from St. Louis, Mo., to Shreveport via the Sunshine Special of the Missouri Pacific north of Hope, provides a 40 min. earlier arrival in Shreveport, with the departure from St. Louis unchanged.

News Department continued on second left-hand page



Today's Schedules

AND

HEAVY TRAINS

demand maximum power from locomotives

To meet this demand, well balanced boilers — the correct relation of superheat, gas area, draft loss, drop in pressure, front end temperature, grate area, evaporating surface, and prevention of water carry-over are most essential.

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SUPERHEATER
COMPANY

Representative of AMERICAN THROTTLE COMPANY, INC.
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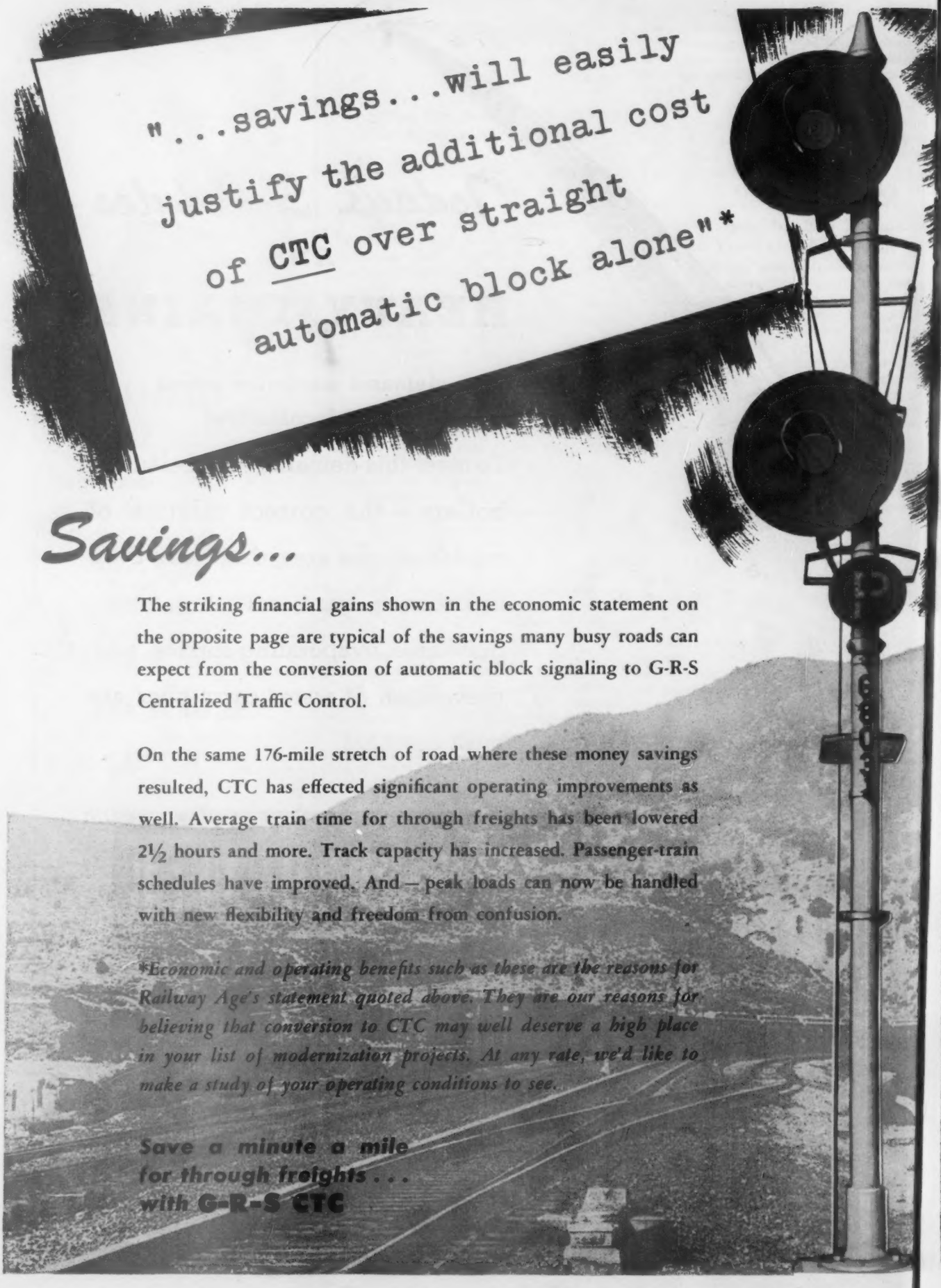
Montreal, Canada, THE SUPERHEATER COMPANY, LTD.

Superheaters • Superheater Pyrometers • Exhaust Steam Injectors • Steam Dryers • Feedwater Heaters • American Throttles

"...savings...will easily justify the additional cost of CTC over straight automatic block alone"*



Savings...

The striking financial gains shown in the economic statement on the opposite page are typical of the savings many busy roads can expect from the conversion of automatic block signaling to G-R-S Centralized Traffic Control.

On the same 176-mile stretch of road where these money savings resulted, CTC has effected significant operating improvements as well. Average train time for through freights has been lowered 2½ hours and more. Track capacity has increased. Passenger-train schedules have improved. And — peak loads can now be handled with new flexibility and freedom from confusion.

**Economic and operating benefits such as these are the reasons for Railway Age's statement quoted above. They are our reasons for believing that conversion to CTC may well deserve a high place in your list of modernization projects. At any rate, we'd like to make a study of your operating conditions to see.*

Save a minute a mile for through freights . . . with G-R-S CTC

For Example

Here is the economic statement of one railroad, following conversion of automatic block to CTC.

ECONOMIC STATEMENT

1.	Cost of Installation:		
	(a) Chargeable to capital investment:		
	Signaling	$751,637	
	Track changes	471,593	
	Telegraph work	4,810	
	Total		$1,228,040
	(b) Chargeable to operating expense:		
	Signaling	$ 93,645	
	Track changes	67,015	
	Trucks	3,180	
	Total		163,840
	(c) Total		$1,391,880
2.	Gross Saving per Annum		$387,005
3.	Increased Maintenance and Operations per Annum		7,759
4.	Net Saving Exclusive of Interest Charges		$379,246
5.	Interest (5% of capital investment)		61,402
6.	Net Saving		$317,844
7.	Annual Return above Interest Charges:		
	(a) On capital investment (6 ÷ 1-a) - - - -		26%
	(b) On total cost (6 ÷ 1-c) - - - -		26%
8.	Annual Return on Investment:		
	(a) On capital investment (4 ÷ 1-a) - - - -		31%
	(b) On total cost (4 ÷ 1-c) - - - -		27%

NOTE: In the above installation CTC was installed where automatic block signaling was already in operation. The gains shown are *in addition* to those being derived from the previous automatic system.

General Railway Signal Company

ROCHESTER 2, N. Y. • NEW YORK 17 • CHICAGO 3 • ST. LOUIS 1

A-2162

ANOTHER BOWSER SYSTEM
for SAFE, CLEAN HANDLING of OIL HOUSE LIQUIDS . . .

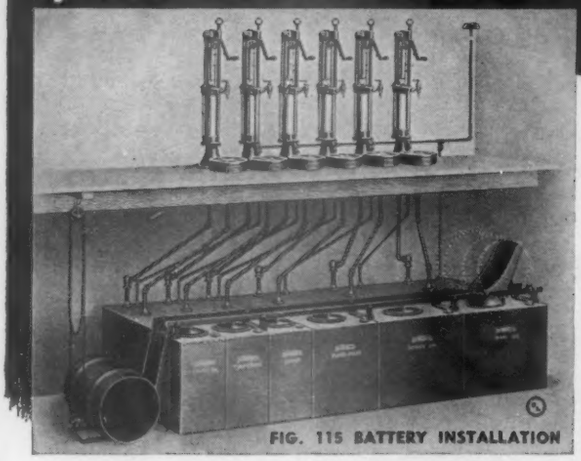


FIG. 115 BATTERY INSTALLATION

. . . for lube oils, paint oils, varnishes and similar liquids. May be installed singly or in any combination. Especially suited for pit or cellar installations. Similar self-contained equipment available for above floor installation.

BOWSER FEATURES

Galvanized Steel Tank — Drip-Pan Return
Bolted Man-Hole Cover — Rivet Soldered Construction
Simplified Installation — Accurate Measurement
Underwriters' Listed

UTILITY PUMP

. . . a non-measuring type for dispensing signal oils, gasoline, kerosene, etc. along wayside points . . . can be furnished complete with underground storage tank and all fittings for permanent installation. Write for Railroad Catalog today.

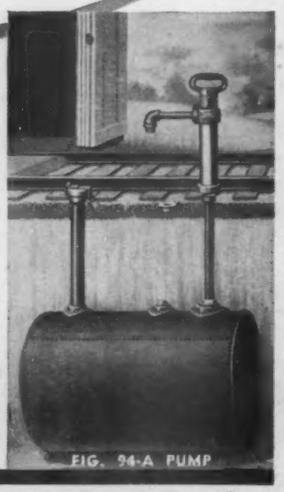


FIG. 94-A PUMP

UL

A Complete Line of Liquid-Handling Systems For Railroads

- Fueling systems designed for your individual needs.
- Proportioning and blending systems of absolute accuracy.
- Selective lubrication systems for all types of machinery.
- Precise metering and accounting systems for liquid operations.
- Complete storage and dispensing systems for railroads.

BOWSER, INC. • 1321 CREIGHTON AVE. • FORT WAYNE 2, INDIANA

August Employment

Railroad employment increased 1.42 per cent—1,348,918 to 1,368,019—during the one-month period from mid-July to mid-August, but the mid-August total was 5.55 per cent below the total for August, 1945, according to the preliminary summary prepared by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission. The index number, based on the 1935-39 average, was 131.3 for August, as compared with 129.4 for the previous month and 139 for August, 1945.

August employment was above that of the corresponding 1945 month in only one group, the increase being 2.66 per cent in transportation, other than train, engine and yard.

The declines ranged from 0.13 in the executives, officials and staff assistants category to 13.94 per cent in the maintenance of way and structures group.

As compared with the previous month, there were increases in employment in all categories, ranging from 0.17 per cent in the executives, officials and staff assistants group to 2.33 per cent in maintenance of way and structures.

U. S. M. C. Would Again Extend "Temporary" Carrier Rights

The United States Maritime Commission, which absorbed all functions of the War Shipping Administration on September 1, has applied to the Interstate Commerce Commission for a further extension, from September 30 to December 31, of W. S. A.'s year-old "temporary" authority to operate as a common or contract carrier by water in coastwise or intercoastal service between points on the Atlantic, Gulf of Mexico, and Pacific coasts. The authority was originally scheduled to expire December 31, 1945.

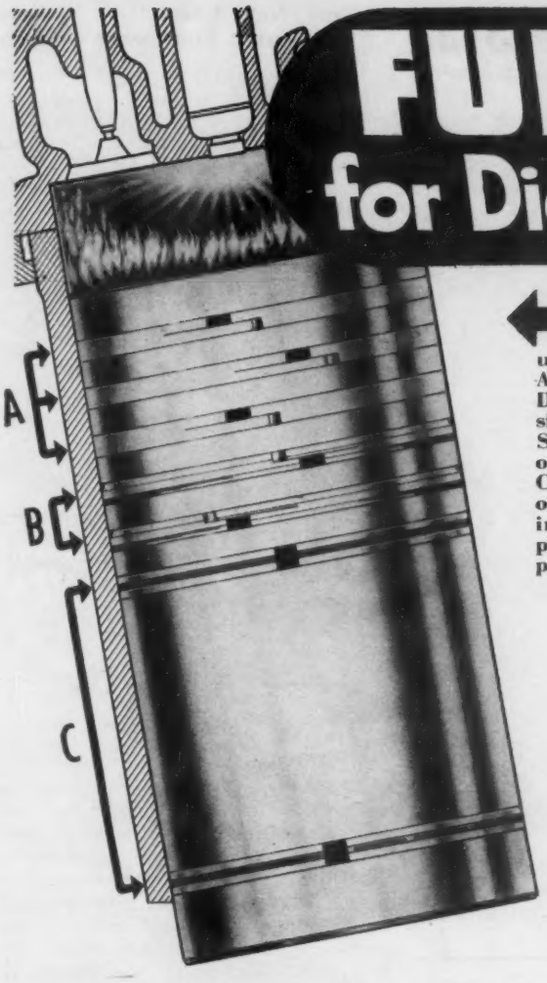
In making public the Maritime Commission's letter requesting the further extension in its own name, the I. C. C. invited all parties in interest to file statements of their views with respect to the matter by September 16. The Maritime Commission's letter said in part:

"The announced policy of the War Shipping Administration to withdraw from government operation at the earliest practical date will continue to be the policy of the United States Maritime Commission. . . . There are, however, certain reasons why it is impossible for the government to withdraw from operation by September 30. There are practical difficulties in the way of restoring vessels to their owners and of completing the sale of new vessels to steamship operators before this date.

"In addition, the rate structures of the coastwise lines, although they have been substantially revised recently, have not yet been sufficiently readjusted to enable the private operators to resume operations with reasonable hope of success. As you know, these rate readjustment proceedings are usually complicated because of the long period of suspension of water carrier service, and although it is our hope that adequate readjustments can be effected without protracted delay, it is, nevertheless, certain that sufficient readjustments cannot be accomplished before the end of September."

News Department continued on next left-hand page

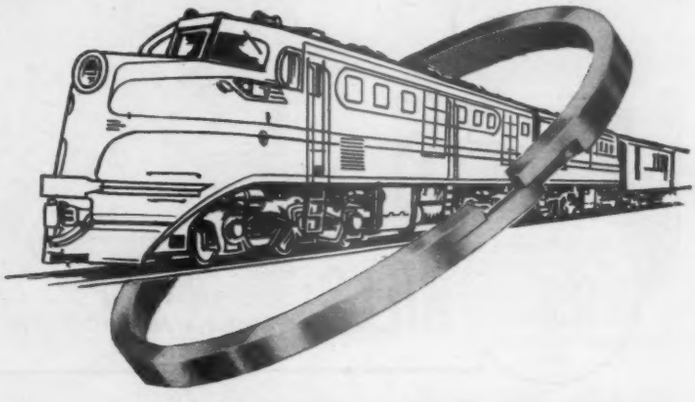
FULL POWER for Diesel Locomotives



A proved combination for a widely used 4-cycle Diesel. A—Hunt Spiller-Double Seal compression rings. B—Hunt Spiller-Double Seal one piece oil rings. C—HS-DS ventilated oil rings. Result: maximum compression; practically no oil pumping or carbon.

with

HUNT-SPILLER DOUBLE SEAL PISTON RINGS



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Greater compression and power because there is no blow-by at piston wall or ring groove. Double Seal rings give you these advantages along with all the strength of plain rings. And you are always sure of superior performance because Double Seal rings have had fourteen years of rigorous testing in practically every type of Diesel engine.

MADE FROM HSGI CASTINGS

Double Seal rings are precision machined from Hunt-Spiller *Air Furnace* Gun Iron with proper tension *cast* into the rings. Lower ring-to-wall pressure and tough, smooth-finished HSGI mean far less ring and cylinder wear.

FAST SERVICE ON ALL SIZES

With nearly a million rings for practically every purpose in stock at all times, you can always depend upon prompt service. Special rings made to specification within 3 to 14 days. *Address all ring inquiries to Double Seal Ring Co., P. O. Box 566, Fort Worth, Texas.*

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RID YOUR EQUIPMENT OF INSECT PESTS WITH

PESTROY 25% DDT

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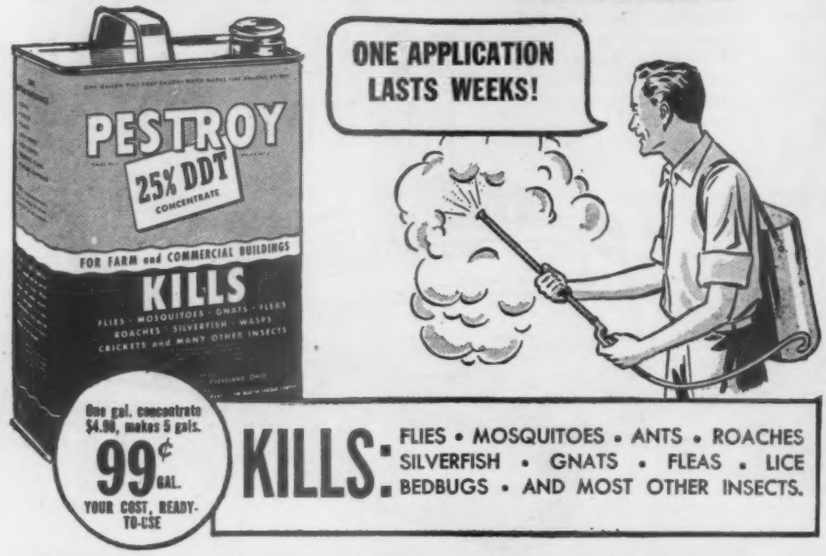

One gal. concentrate $4.98, makes 5 gals. 99¢ GAL. YOUR COST, READY-TO-USE

KILLS: FLIES • MOSQUITOES • ANTS • ROACHES SILVERFISH • GNATS • FLEAS • LICE BEDBUGS • AND MOST OTHER INSECTS.

THERE'S NO EASIER, SURER, MORE CONVENIENT WAY TO KILL INSECTS!

At last! As a result of combined research in the chemical laboratories of 7 great companies, PESTROY 25% DDT CONCENTRATE—the ideal form of world-famous DDT for use by railroads—has been perfected. Just mix it with water. PESTROY DDT stays in suspension—does not require agitation or stirring before or after mixing. Will not cake in the container or clog equipment. Use any spray equipment available, or simply brush on. PESTROY DDT adheres to the surface, keeps killing bugs for weeks, months after application. And how it kills! Bugs merely need to touch its deadly surface. That's all! Furthermore, PESTROY DDT is odorless, will not annoy passengers or crew. And it's absolutely SAFE, will not harm humans, animals, and is non-inflammable when used according to directions.

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Adopt New Collection System for Water Commerce Data

Taking what it regards as "a great comprehensive step in its efforts to standardize government statistics," the Army's Corps of Engineers will make effective next January 1 a new system for the uniform collection of all waterborne commerce statistics. Under the new system, adoption of which was announced recently by Lieutenant General Raymond A. Wheeler, chief of engineers, the operators of all vessels using U. S. waterways or harbors will file a single, standardized, trip-by-trip report on their vessel and cargoes directly with appropriate district engineer offices, "rather than a number of reports with several government agencies interested in similar data."

The report, the announcement continued, "will cover many points of information of value" to the Corps of Engineers, the Maritime Commission, the Interstate Commerce Commission, "and other government agencies."

The announcement also stated that the new plan has been under test on the Great Lakes "for several years" and on intercoastal routes since last July. "The standardized report," General Wheeler said, "has been carefully worked out with attention to details, such as type of vessel, tonnage and draft, types and quantities of commodities, routes, and points of origin and destination. The result should be conclusive to a degree heretofore unattained."

In the operation of the plan, the various district engineer offices will forward the reports of regional offices where they will be compiled on summary cards for processing in the Washington office. The latter will complete the compilation and prepare the data for publication. "Although the data collected will be too voluminous for publication in the annual report of the chief of engineers, all statistics will be compiled by machine methods and may then be produced as supplemental information," the announcement said.

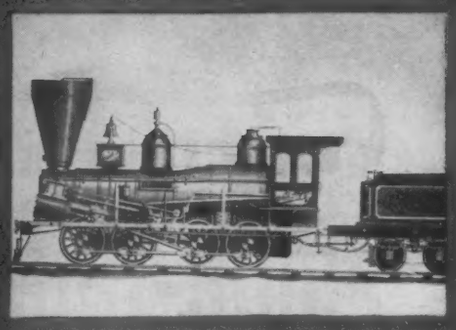
Service Order Violation Costs Southern $500

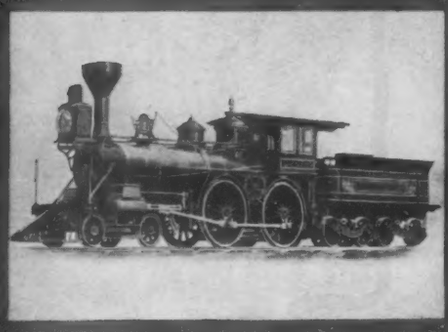
Secretary W. P. Bartel of the Interstate Commerce Commission announced on September 6 that the commission has been advised by the United States Attorney for the District of Columbia that on August 2 the Southern Railway confessed judgment to a complaint alleging that it had violated I. C. C. Service Order No. 436. A penalty of $500 was imposed by the court.

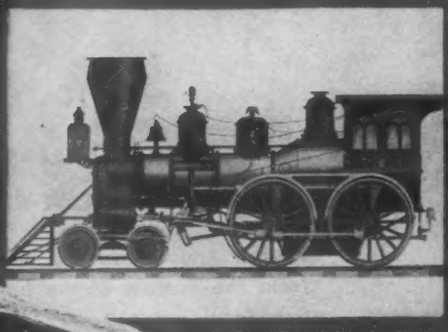
Service Order No. 436 provides that all common carriers, within 24 hours after a refrigerator car has been emptied, should remove such empties from their place of unloading and without delay (1) place each refrigerator car in an outbound train and (2) forward the car to a point where perishables are loaded or deliver it to a connecting common carrier for return to the point of loading.

The complaint charged in five counts that the Southern had unreasonably delayed five refrigerator cars after they had been removed from the unloading point.

IN "UNION" THERE IS EXTRA STRENGTH







Every forward step in the progress of motive power has called for driving wheels of greater strength . . . to carry heavier loads at higher speeds for longer runs . . . Check "Union's" characteristics against your future requirements.

UNION STEEL CASTINGS

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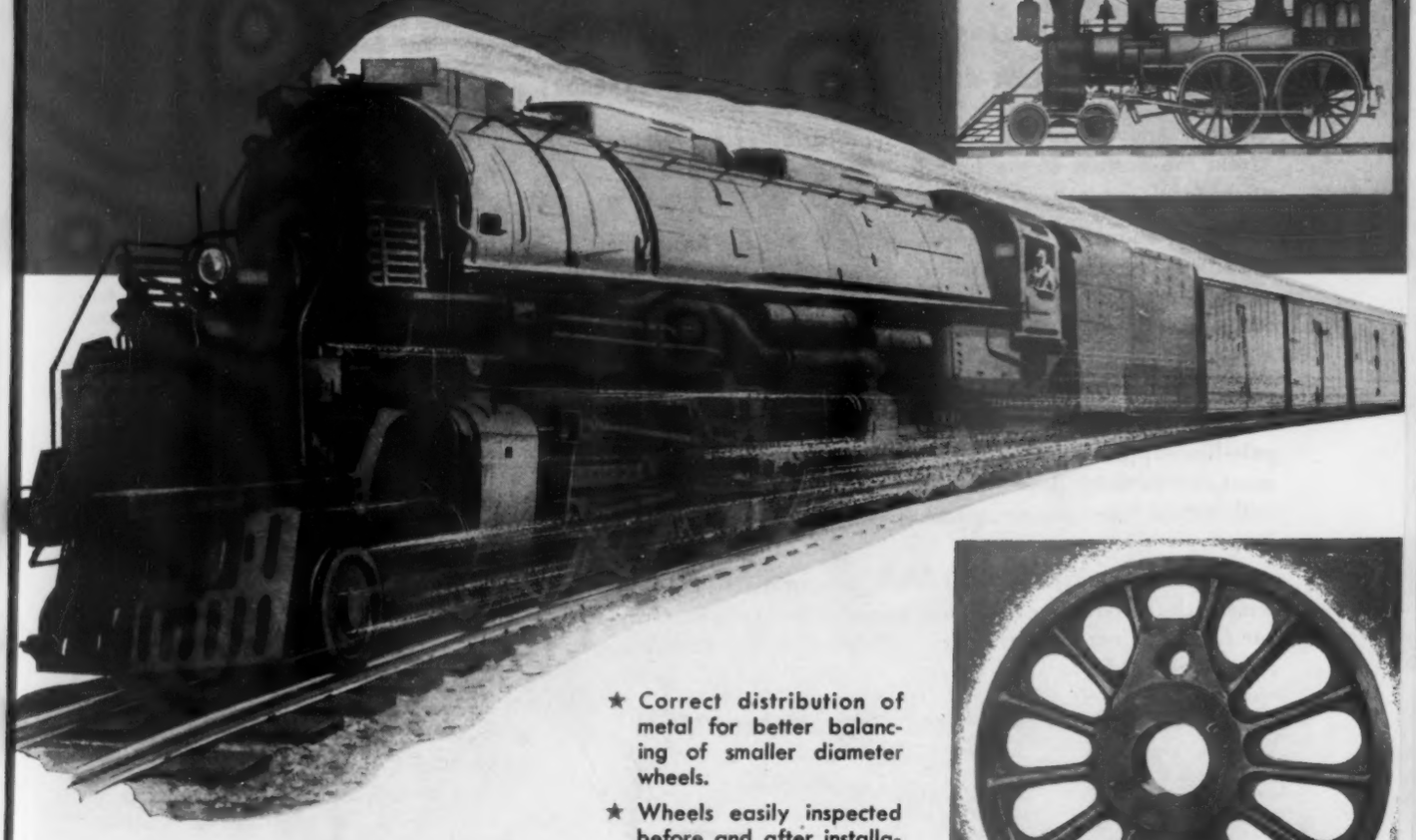
Seven Blaw-Knox plants have been awarded the Army-Navy "E", and have regularly received renewal stars for continued high achievement in the production of war material



★ Cruciform section spokes for great additional strength.

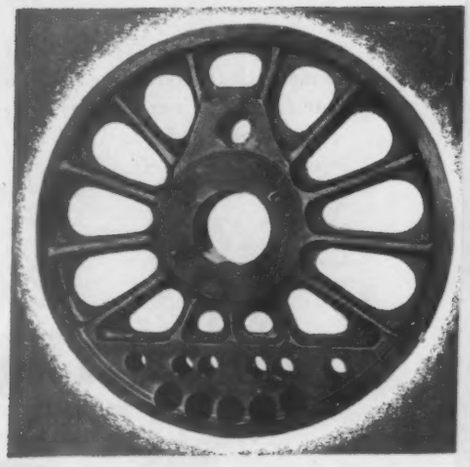
★ Reinforced rim support to eliminate flat spots, out of roundness, etc.

★ Correct distribution of metal for better balancing of smaller diameter wheels.

★ Wheels easily inspected before and after installation.

★ Troubles due to shrinkage eliminated by simplicity of design.

★ Can be made to any material specification.



UNION WEB SPOKE DRIVING WHEEL CENTER

SPECIALIZED SOURCE OF

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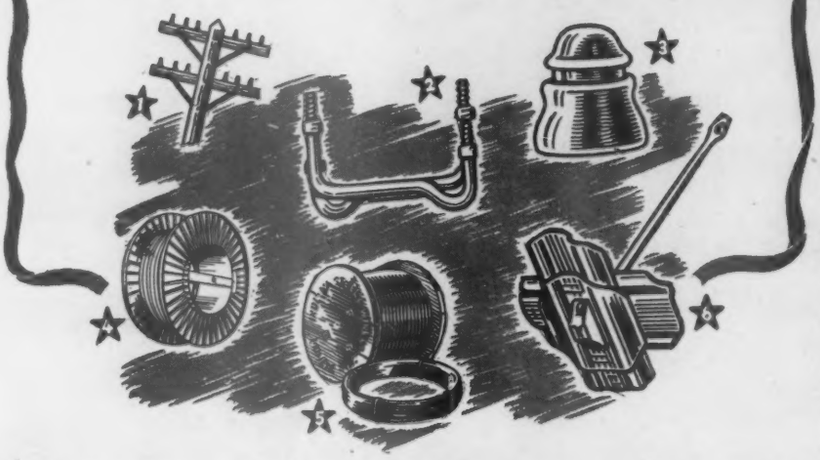

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The items shown here represent only a few of the hundreds of railway pole-line supplies which Graybar distributes. They are all first-quality products of leading manufacturers and are especially suitable for railway use.

OUR RAILROAD DEPARTMENT personnel have the specialized knowledge to help you select and apply the best apparatus and supplies for many of your electrical needs — including pole-line supplies, communication equipment, lighting equipment, repair-shop power apparatus and electric tools. Our nation-wide warehousing system speeds delivery of available items.

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IN OVER 90 PRINCIPAL CITIES

Railroads Aim to Avert Damage to Furniture in Transit

A special campaign to reduce the increasing damage to furniture while in transit is being conducted by the railroads during September, it was announced this week by C. H. Dietrich, executive vice-chairman of the Freight Claim Division of the Association of American Railroads. According to Mr. Dietrich, the campaign was initiated because of the drain on railroad revenues from loss and damage payments and the general scarcity of furniture.

Mr. Dietrich said that except for fresh fruits and vegetables, damage to furniture shipments is probably the most difficult to prevent. He reported that l. c. l. furniture claims on the railroads rose from $1,512,554 in 1940 to $4,660,498 in 1945, adding that claims at the present time are running about 10 per cent above the 1945 figure. He also noted that carload furniture claims have risen sharply in comparison to the amount shipped.

Pointing out that the campaign will emphasize the importance of careful handling and loading of furniture, Mr. Dietrich said that the railroads have been receiving "splendid cooperation" from the furniture manufacturers' associations and the National Furniture Traffic Conference in their efforts to reduce furniture damage. He added that the Freight Claim Division has provided the carriers with a suggested program and that each road, based upon its own experience and facilities, is carrying out the type of activity that can be conducted most successfully on its own line.

Lifts Bars on Shipments from Beetle-Infested Areas

Shipments of fruits and vegetables from the area "heavily infested" with the Japanese beetle are not subject to restrictions for the remainder of the current season, the Department of Agriculture announced recently. The "heavily infested" area includes Delaware and the District of Columbia, and parts of New Jersey, Pennsylvania, Maryland, Virginia and New York.

Removal of the restrictions began on August 30 since which date shippers have not been required to obtain certificates for the movement of fruits and vegetables, except green ear corn. The certification requirements with respect to shipments of green ear corn were scheduled to be removed September 13. Restrictions on shipments of cut flowers will be removed September 30.

N. Y. C. Inaugurates Reserved Seat Coaches, Chicago-Boston

Reserved seat coaches between Chicago and Boston, Mass., were inaugurated eastward on September 8, and westward on September 12, by the New York Central. The cars operate in both directions in the "Paul Revere," which for some time has handled a reserved seat coach from St. Louis, Mo., to Boston. Coaches assigned to this service have been selected from the fleet of 130 new cars recently delivered the road by the Pullman-Standard Car Manufacturing Company.

An Ideal Combination

HUNDREDS
of LOCATIONS
are
RIPE
for RELIEF from the
WASTE of OVER-POWER

IMPROVED SERVICE plus SAVINGS

DAVENPORT LIGHTER DIESEL SWITCHERS

So basic is the need — so definite the benefits to be derived from DAVENPORT LIGHTER DIESEL SWITCHERS on locations now served by over-powered and obsolete steam switchers — we urge railroad executives to give analytical consideration to service-proven Davenports—30-Ton Diesel Mechanical and 44-Ton Diesel Electric Locomotives.

Here's a direct and positive way to achieve IMPROVED SWITCHING and BRANCH LINE SERVICE — while halting the WASTE of OVERPOWER.

STRENGTHEN YOUR ROAD by PLUGGING those LEAKS

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Pioneers of the Lighter Diesel Switchers

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TAME BUCKING BOXCARS

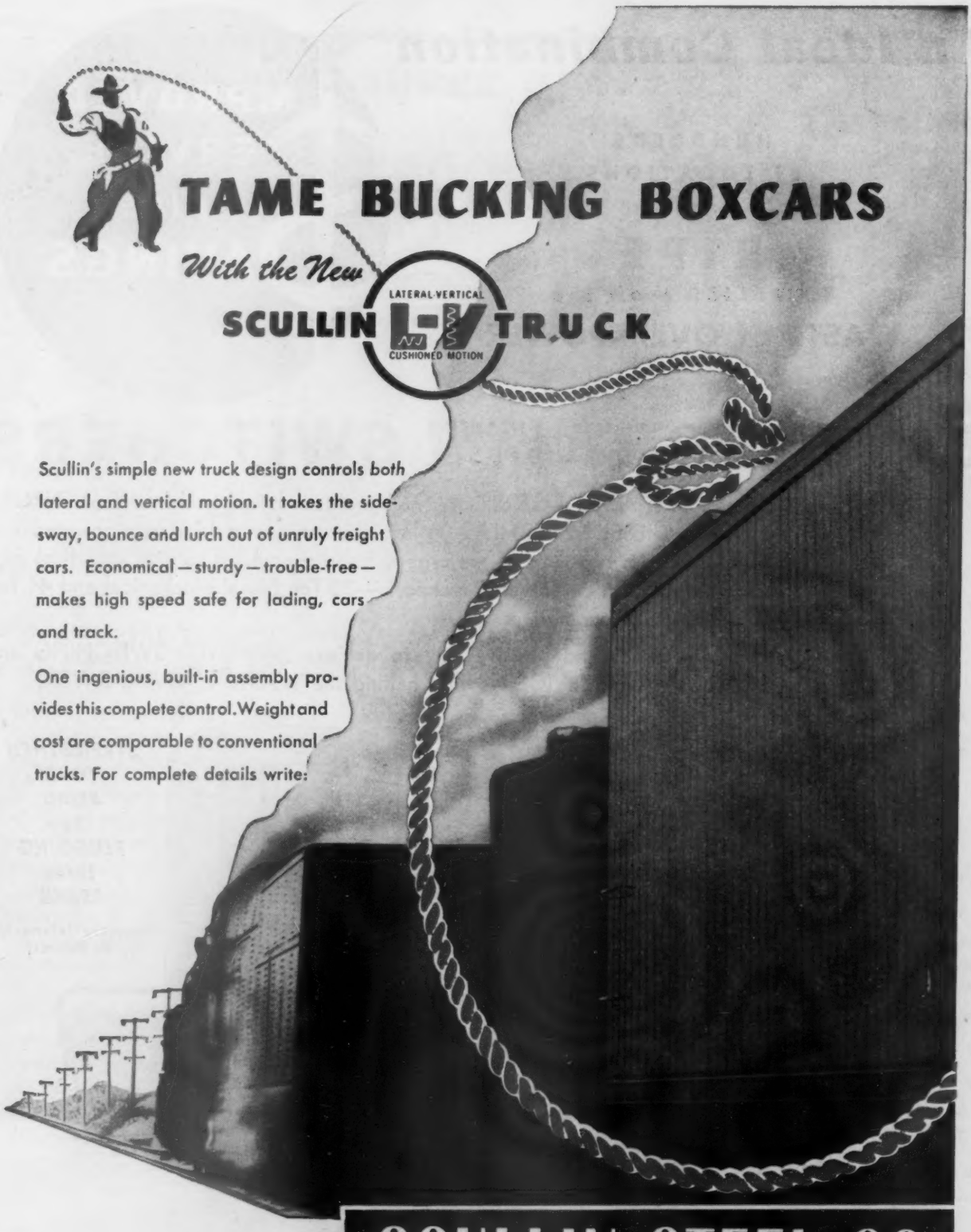
With the New

SCULLIN L-V TRUCK

LATERAL-VERTICAL CUSHIONED MOTION

Scullin's simple new truck design controls *both* lateral and vertical motion. It takes the side-sway, bounce and lurch out of unruly freight cars. Economical—sturdy—trouble-free—makes high speed safe for lading, cars and track.

One ingenious, built-in assembly provides this complete control. Weight and cost are comparable to conventional trucks. For complete details write:



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STEEL CASTING MANUFACTURERS SINCE 1899

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Cast molybdenum steel wheel centers help reduce locomotive maintenance costs.

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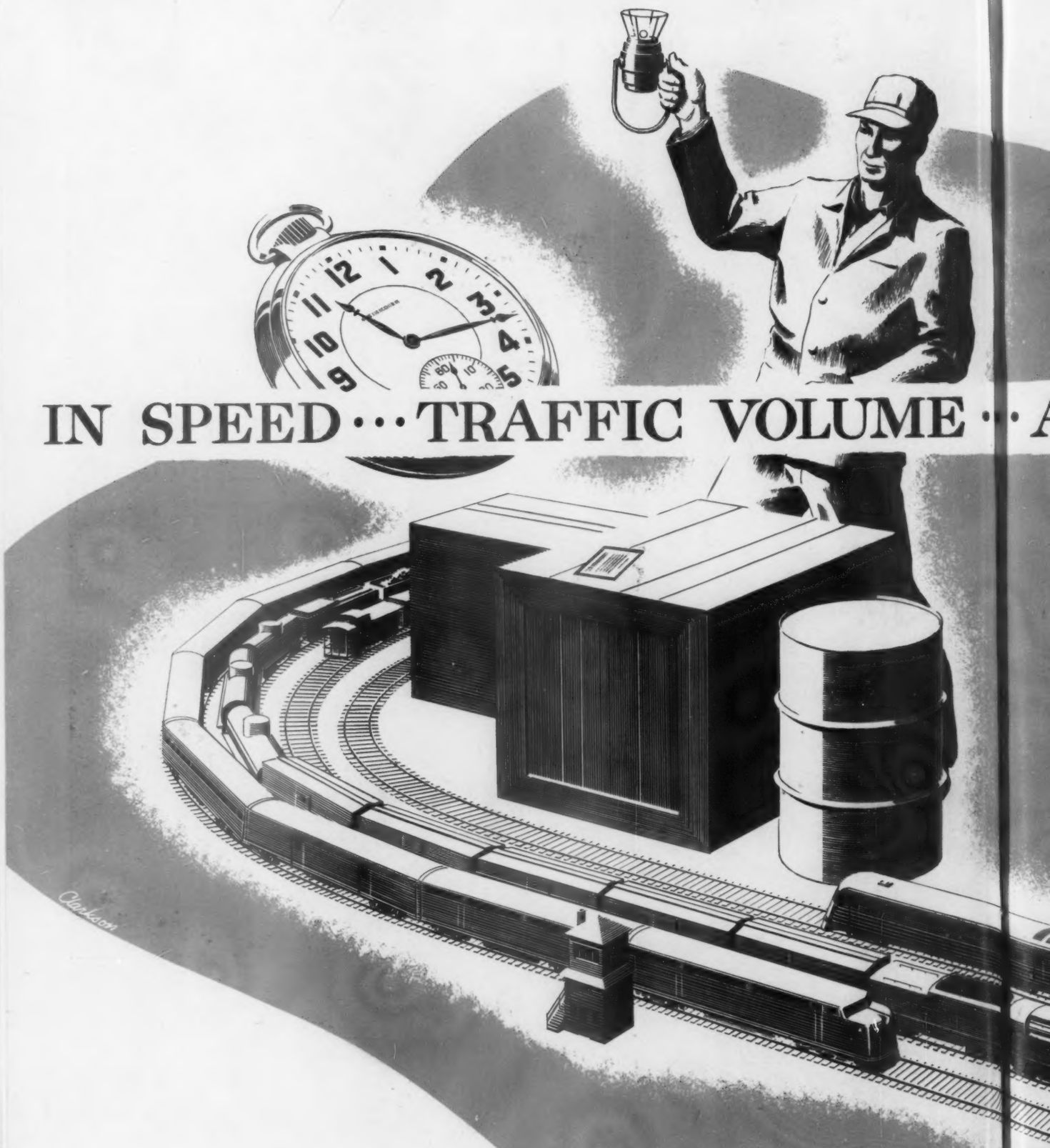
IN SPEED ··· TRAFFIC VOLUME ··

Brakes are basic to Railroad Progress

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Railroad progress reflects the engineering, operation and management contribution of countless brilliant men and the continuing cooperation of generations of loyal employes.

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Consider these advantages:

- **Operating handle on side of car to eliminate dangerous task of getting under or between cars to take up slack.**
- **Positive take-up and slack-off.**
- **Simplicity in application and operation.**
- **Can be applied to box, gondola, certain types of flat cars and hopper cars where sufficient clearance is available between hoppers.**

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Retubing of vitally-needed locomotives is costly in more ways than one . . . costly from the standpoint of materials, labor and time involved, and costly in terms of revenue lost while equipment is off the road.

A proved way to cut these costs is to specify Republic ELECTRUNITE Boiler Tubes. Here's why—

As produced by Republic's improved process of electric resistance welding, these *modern* tubes are consistently uniform in diameter, roundness and high ductility—three qualities which mean fast, efficient installation on every retubing job.

And because they are absolutely free from loose and rolled-in scale . . . always uniform in wall thickness . . . and uniformly strong throughout wall and weld . . . ELECTRUNITE Boiler Tubes are highly dependable, evidenced by the records of thousands of tubes already in service.

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INSPECTED INSIDE AND OUT

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...YET SUPPORTS "HEAVYWEIGHTS"

If you took the "bounce" in a good tennis ball...controlled it, adapted it scientifically for a cushioning and mattress material, then you'd have Koylon Foam!

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The beauty of it all, too...there are no mechanical parts—no springs—to wear out ...no stuffings to bulge or sag. This means lower maintenance costs. Further, eleven years of testing on major railroads prove that Koylon Foam adds to seat upholstery life.

That's why we say: If you sell "seats"—or "sleep"—better sell Koylon Foam!

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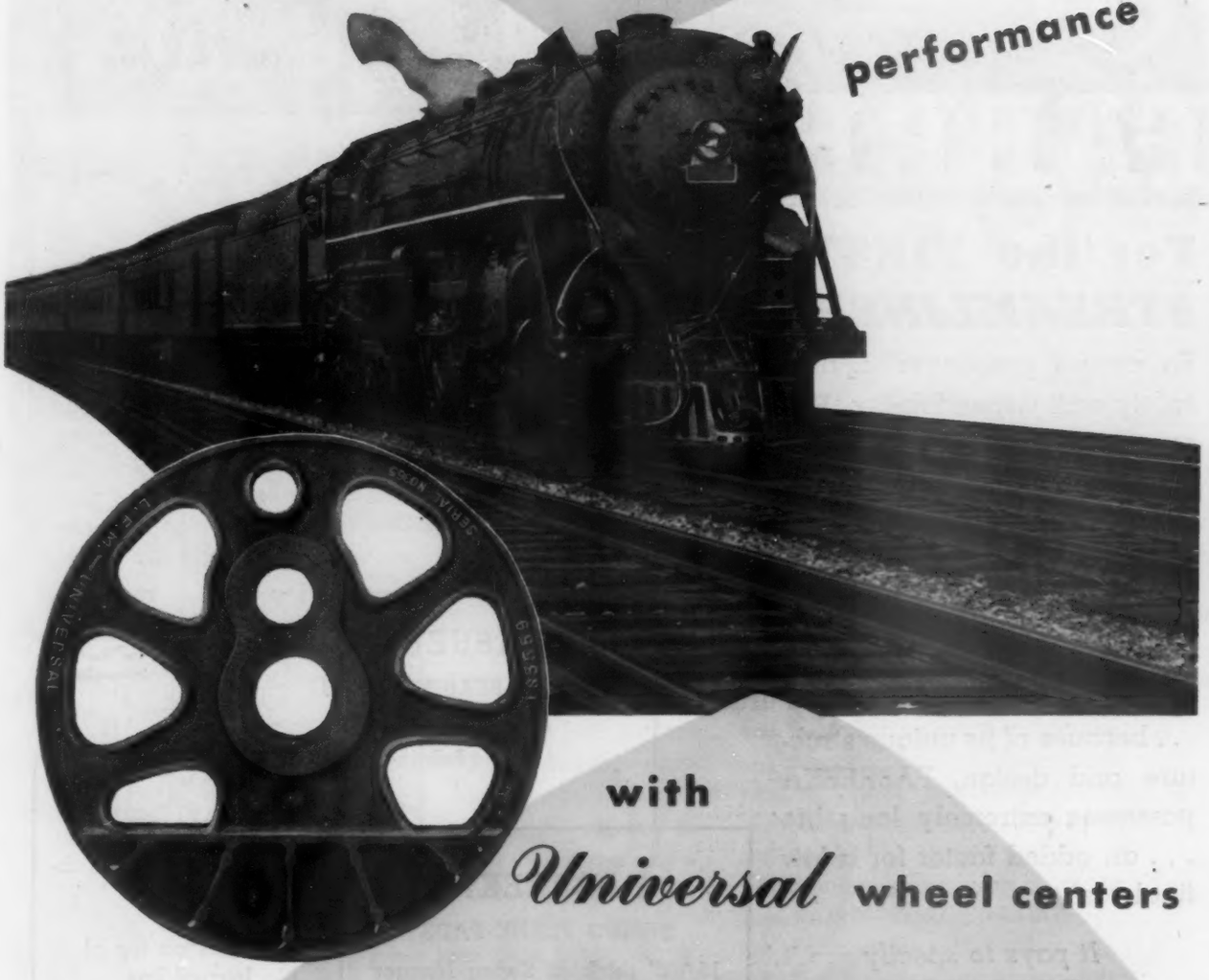
STEP UP locomotive performance



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A HIGHER percentage of locomotive availability is achieved with the use of Universal Wheel Centers since careful design, good quality materials and precise manufacture produce wheels

- √ that lend themselves to simple and accurate counterbalancing;
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- √ that reduce to a vanishing point "dishing," transverse bending, flattening, and stretching in the pressed fits.

Pioneers in the Development of the Light Weight Piston and Combination Sectional Packing

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THE LOCOMOTIVE FINISHED MATERIAL CO.

ATCHISON, KANSAS • NEW YORK CITY • CHICAGO, ILL.

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FABREEKA

For the FIRST Post-War *STREAMLINERS . . .*

To assure passenger comfort with safety and dependability, Pere Marquette specifies FABREEKA to reduce noise, isolate vibration and absorb impact shock.

FABREEKA, proven by more than 12 years' use on the nation's railroads, materially reduces repairs, maintenance and replacement costs. Further . . . because of its unique structure and design, FABREEKA possesses extremely long life . . . an added factor for a low final cost.

It pays to specify
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FABREEKA
CENTER PLATE PADS
½" thick, between Truck Center Plate Casting and Bolster

FABREEKA
EQUALIZER COIL SPRING PADS
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Five Important FABREEKA Applications on Pere Marquette Streamliners.

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11/32" thick at Body Side Bearings

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FABREEKA
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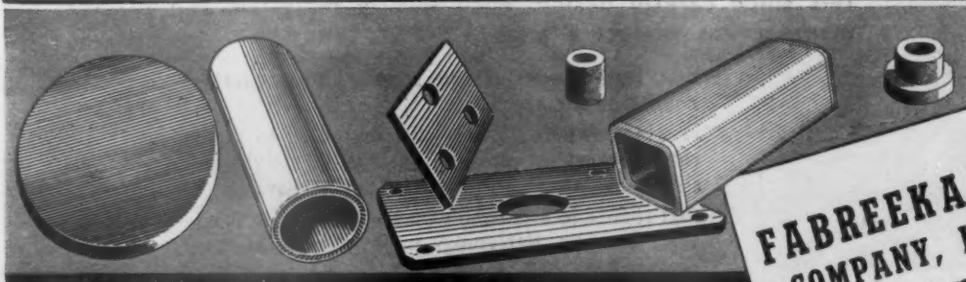
½" thick on top of Journal Box



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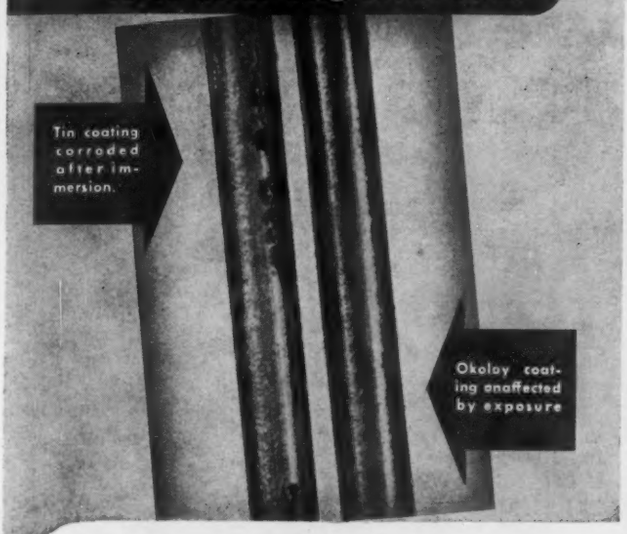

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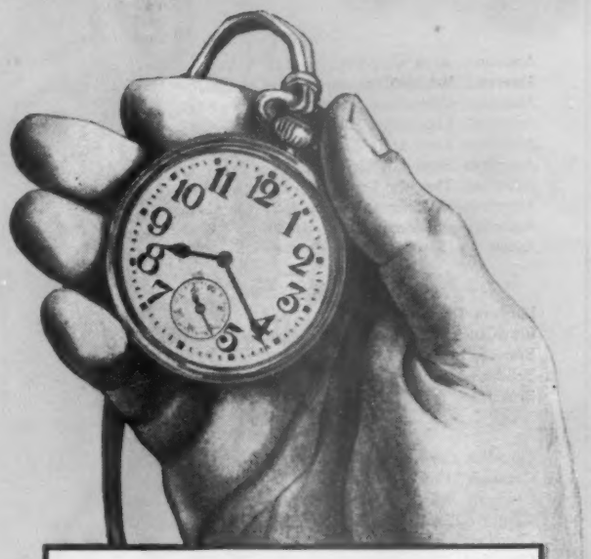

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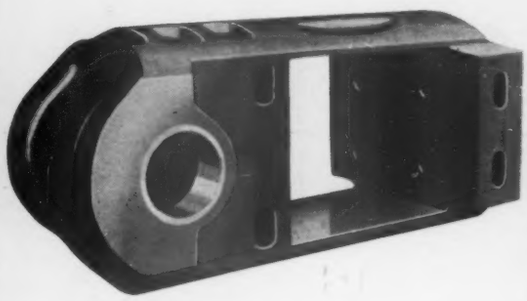

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